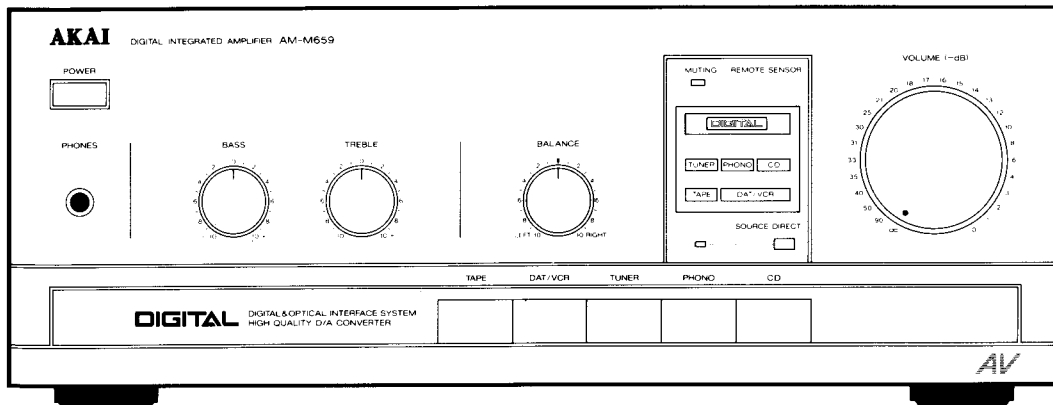
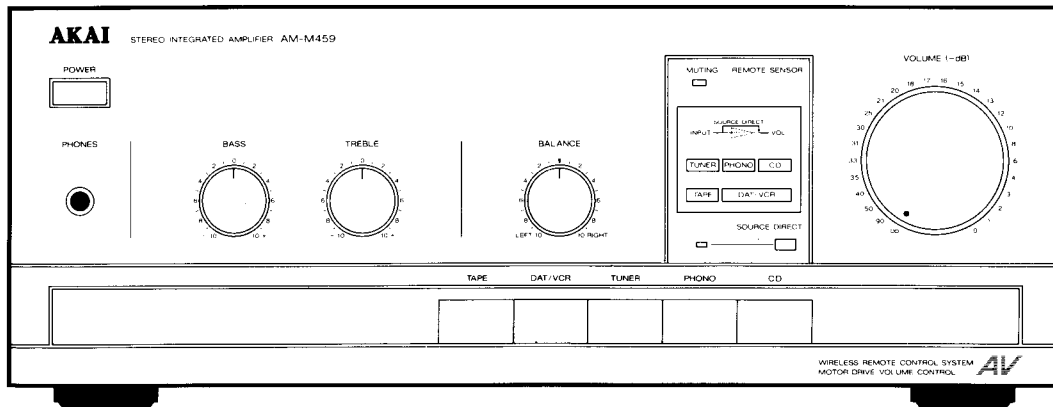


AKAI SERVICE MANUAL



MODEL AM-M659

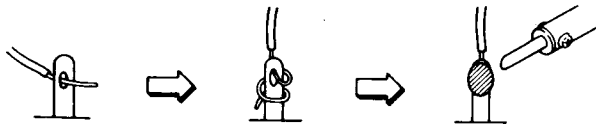
STEREO INTERGRATED AMPLIFIER
MODEL **AM-M459**

DIGITAL INTERGRATED AMPLIFIER
MODEL **AM-M659**

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note, especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

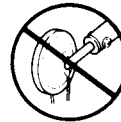
SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be head-phone jacks, line-in-out jacks, etc. more than 2.2 M ohms (ground terminals, microphone jacks).

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode when heated excessively. [OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type only.
- Use soldering iron in "recommended way" only.
- Place battery in correct polarity.
- Do not short the terminals.
- Do not recharge battery.
- Do not dispose of battery in fire.



[DANGER]



[RECOMMENDED WAY]

★ INFORMATION

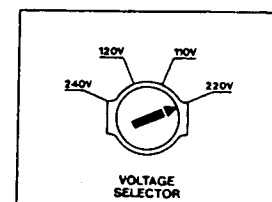
SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

| Symbols | Principal Destinations |
|---------|------------------------|
| [A] | USA |
| [B] | UK |
| [C] | Canada |
| [E] | Europe (except UK) |
| [J] | Japan |
| [S] | Australia |
| [V] | W. Germany only |
| [U] | Universal Area |
| [Y*] | Custom version |

VOLTAGE CONVERSION ([U] Model only)

Before connecting the power cord, SET the VOLTAGE SELECTOR located on the rear plate with a screw-driver so that the correct voltage is indicated.



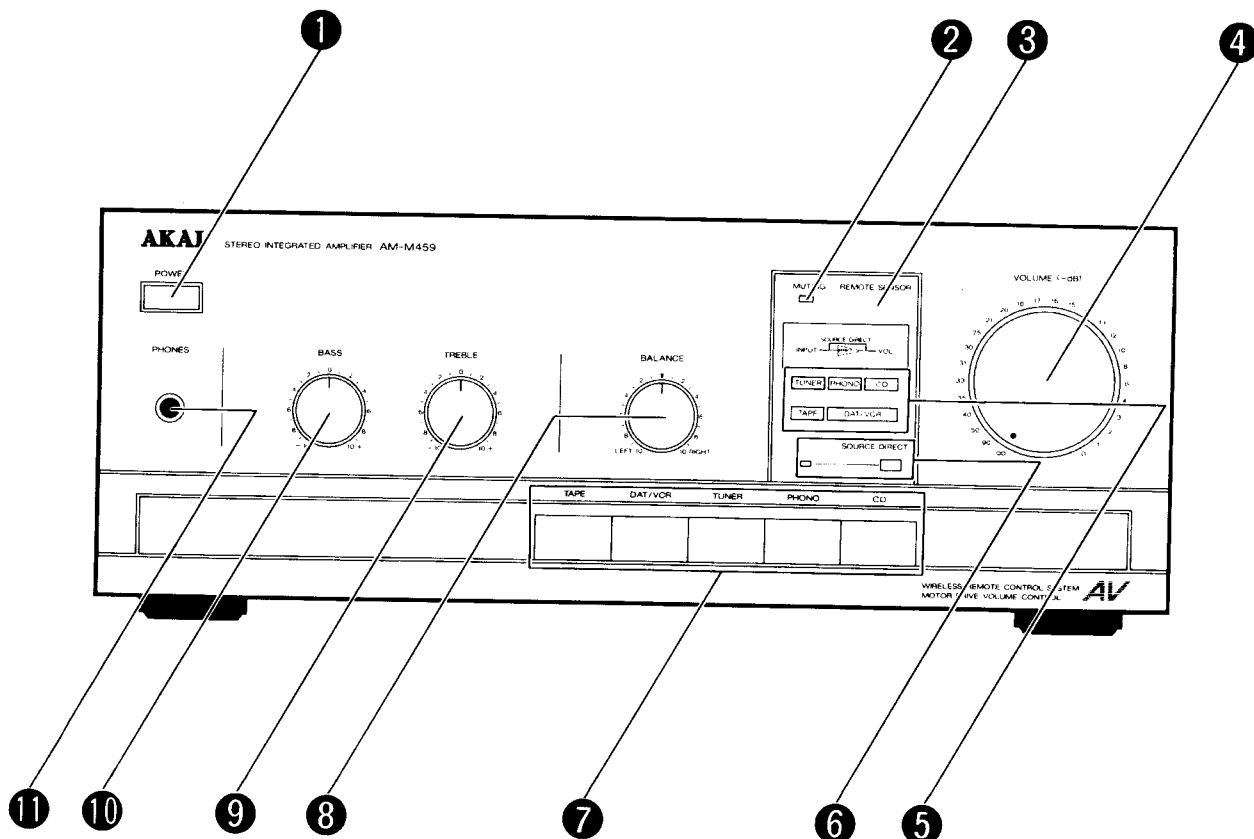
1-1 MODEL AM-M459

* For improvement purposes, specifications and design are subject to change without notice.

* For improvement purposes, specifications and design are subject to change without notice.

II. CONTROLS

2-1 MODEL AM-M459



1 POWER Button

To turn the power on and off.

2 MUTING Indicator

Lights when the remote control's MUTE button is turned on. The volume is attenuated by -20 dB from the set volume level.

3 REMOTE SENSOR Window

The signals from the remote control are received by this window. Keep this window clean.

4 VOLUME Control and Indicator (Motor driven for remote control operation)

To adjust the volume level.

5 Input Source Indicators (TUNER, PHONO, CD, TAPE, DAT/VCR)

Tells you the amplifier is turned on and which playback source is selected.

6 SOURCE DIRECT Button and Indicator

When engaged, the input signal bypasses the BASS, TREBLE and BALANCE control for optimum sound quality playback.

The indicator lights when the SOURCE DIRECT button is turned on.

7 Input Select Buttons (TAPE, DAT/VCR, TUNER, PHONO, CD)

To select a playback or recording source you wish to listen to.

8 BALANCE Control (LEFT/RIGHT)

To adjust the left and right channel volume balance.

9 TREBLE Tone Control

To adjust the high note (treble) level. When set to 0, the control has no effect.

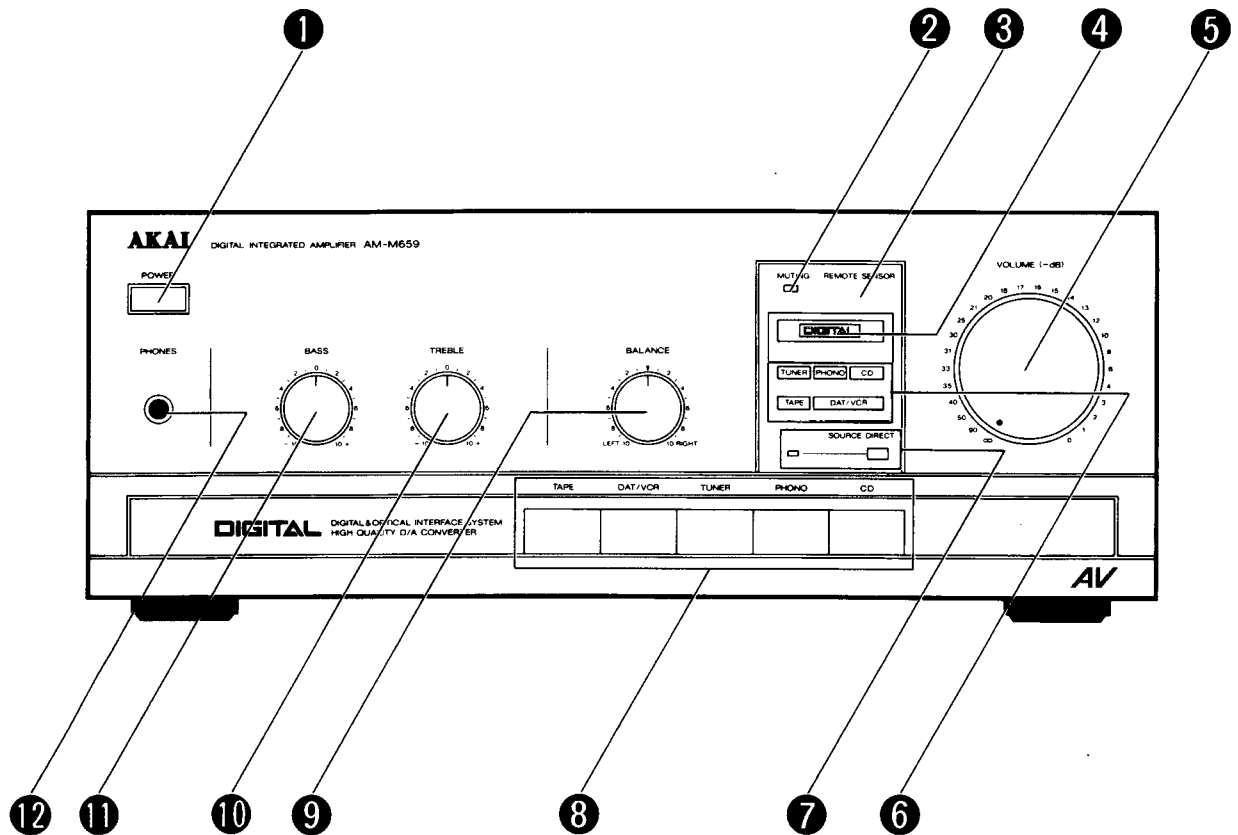
10 BASS Tone Control

To adjust the low note (bass) level. When set to 0, the control has no effect.

11 PHONES Jack

Connect the headphones plug to this jack for private listening. When connecting the plug, the speaker output will be cut automatically.

2-2 MODEL AM-M659



1 POWER Button

To turn the power on and off.

2 MUTE Indicator

Lights when the MUTE button of the remote control unit is turned on. The volume is attenuated by -20 dB (to 1/10).

3 Remote Sensor Window

The signals from the remote control are received by this window. Keep this window clean.

4 DIGITAL Indicator

Tells you the amplifier is in the CD mode. In this case, playback signals are received at the digital input.

5 VOLUME Control

To adjust the volume level.

6 Input Source Indicators (TAPE, DAT/VCR, TUNER, CD, PHONO)

Tells you the amplifier is turned on and which playback source is selected.

7 SOURCE DIRECT Button and Indicator

When engaged, the input signal bypasses the BASS and TREBLE tone controls for optimum sound quality. The indicator lights when the SOURCE DIRECT button is turned on.

8 Input Select Buttons (TAPE, DAT/VCR, TUNER, CD, PHONO)

To select a playback or recording source you wish to listen to.

9 BALANCE Control (LEFT/RIGHT)

To adjust the volume balance of the left and right channels.

10 TREBLE Tone Control

To adjust the high note (treble) level. When set to 0, the control has no effect.

11 BASS Tone Control

To adjust the low note (bass) level. When set to 0, the control has no effect.

12 PHONES Jack

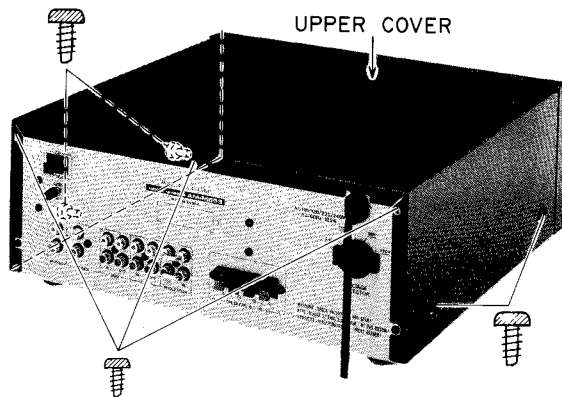
Connect the headphone plug to this jack for private listening. When connecting the plug, the speaker output will be cut automatically.

III. DISASSEMBLY

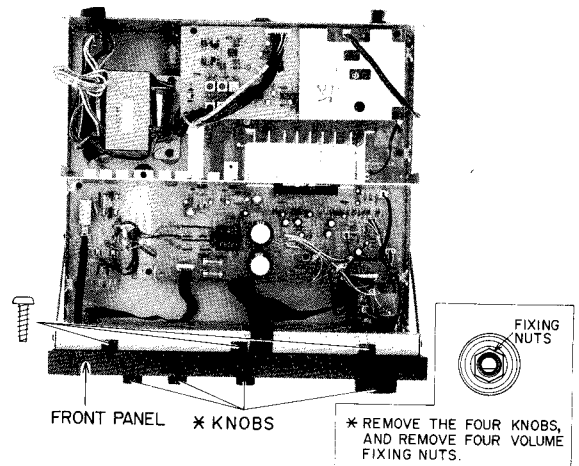
In case of trouble, etc, necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

* Photographs employed in this paragraph are model AM-M659

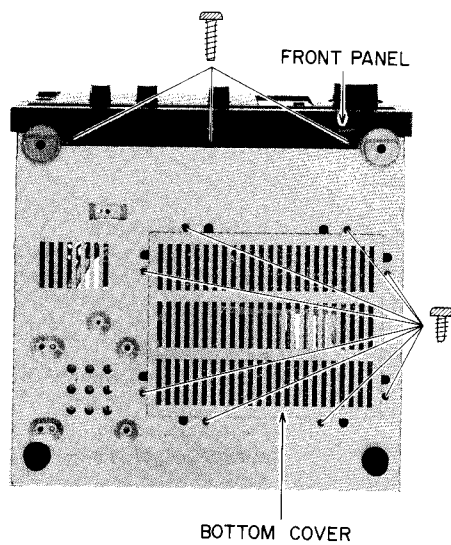
1. Removal of UPPER COVER



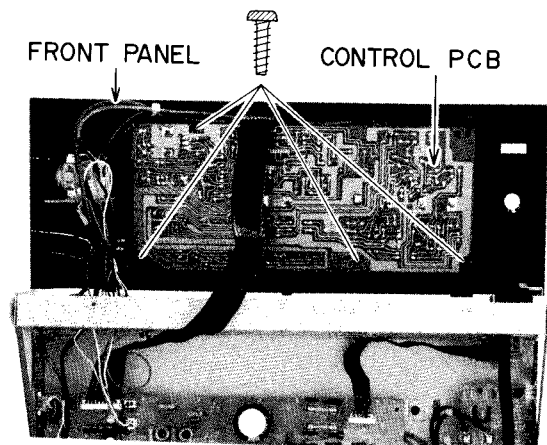
3



2. Removal of FRONT PANEL and BOTTOM COVER



4. Removal of CONTROL PCB



IV. PRINCIPAL PARTS LOCATION

4-1 MODEL AM-M459

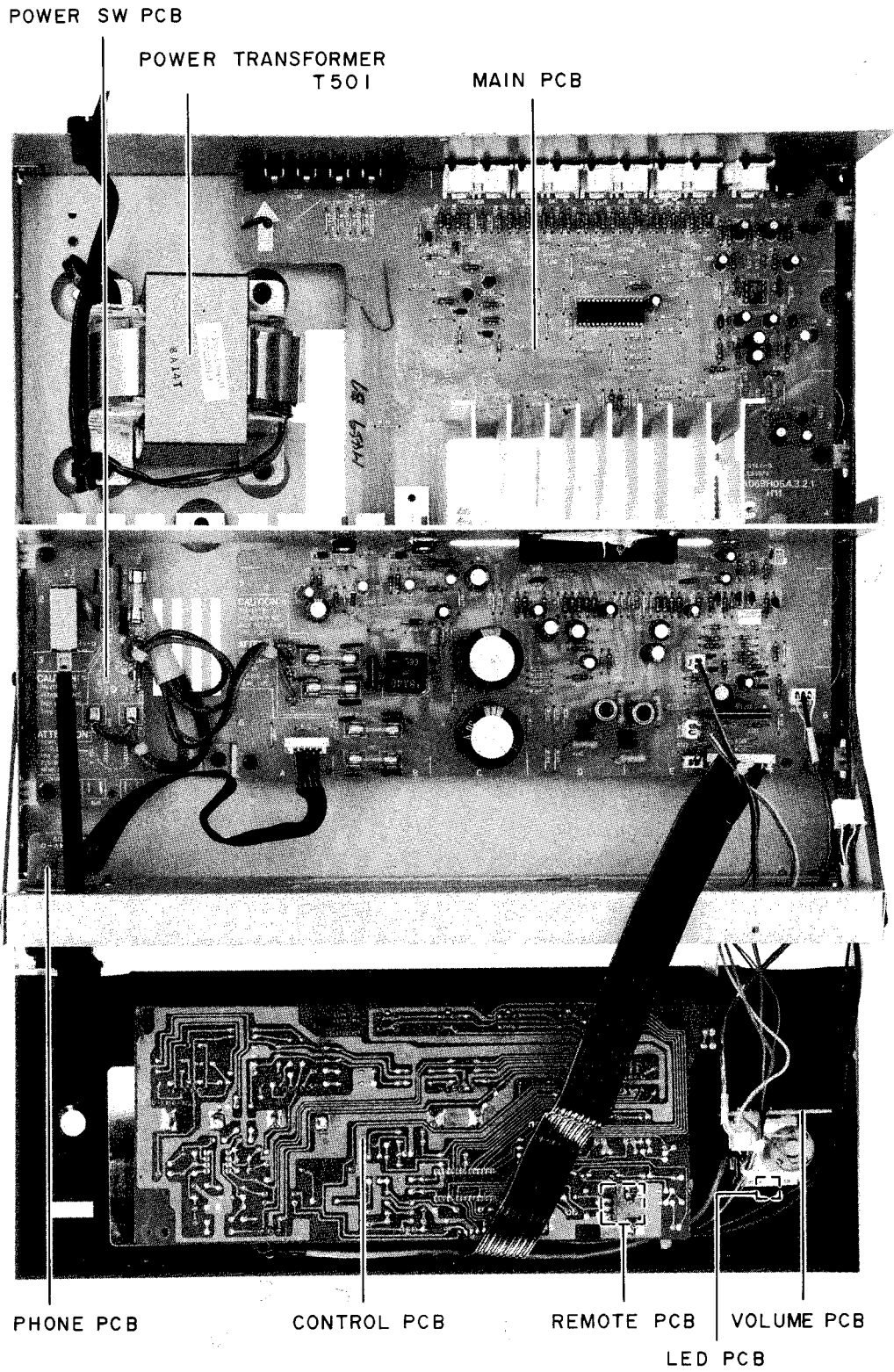


Fig 4-1

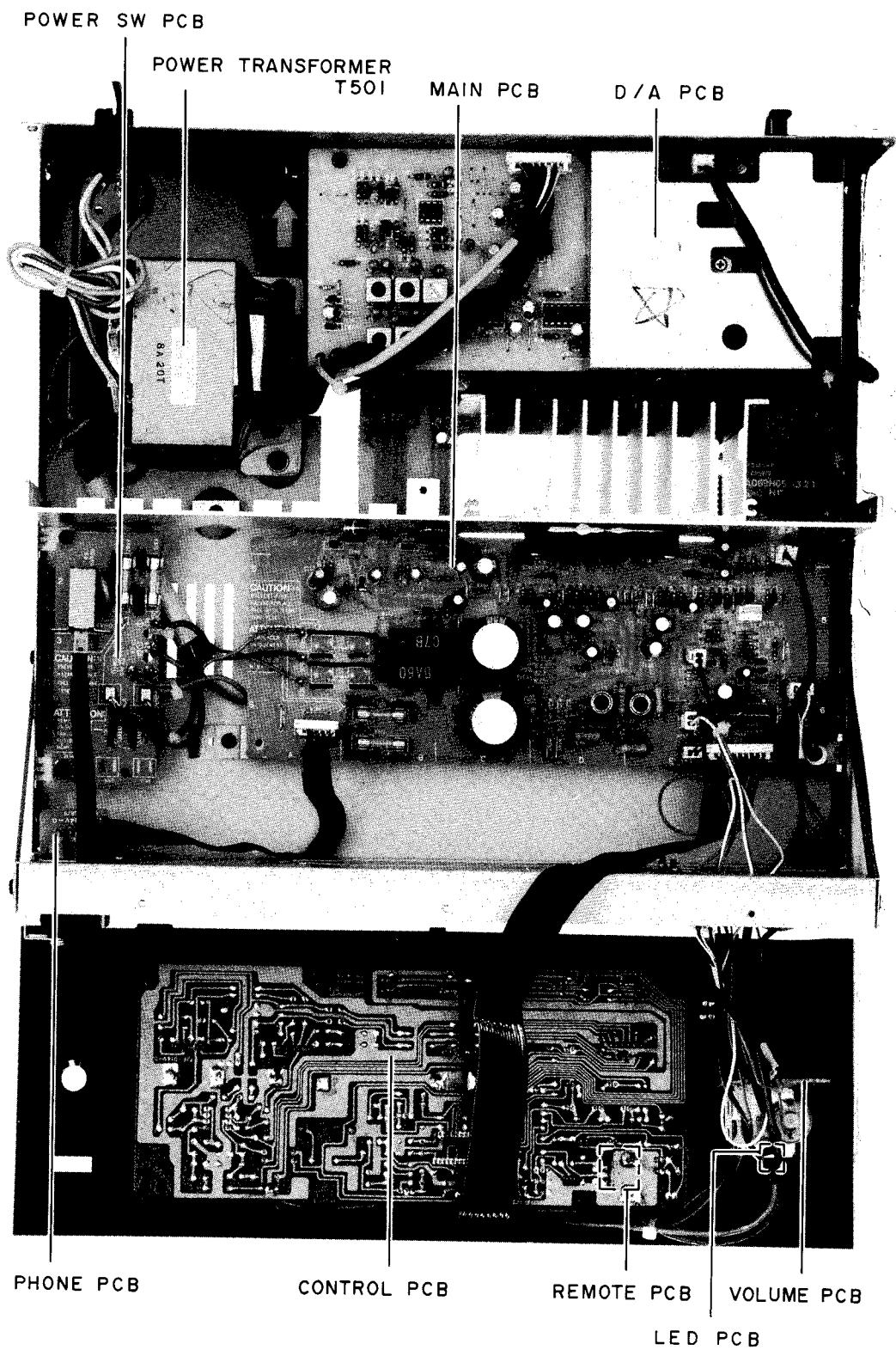


Fig 4-2

V. ADJUSTMENT (Model AM-M659 only)

5-1 ADJUSTMENT OF PLL CIRCUIT

NOTE: When adjusting step 1 (VCO CONTROL VOLTAGE), Remove the Shield cover before adjustment.

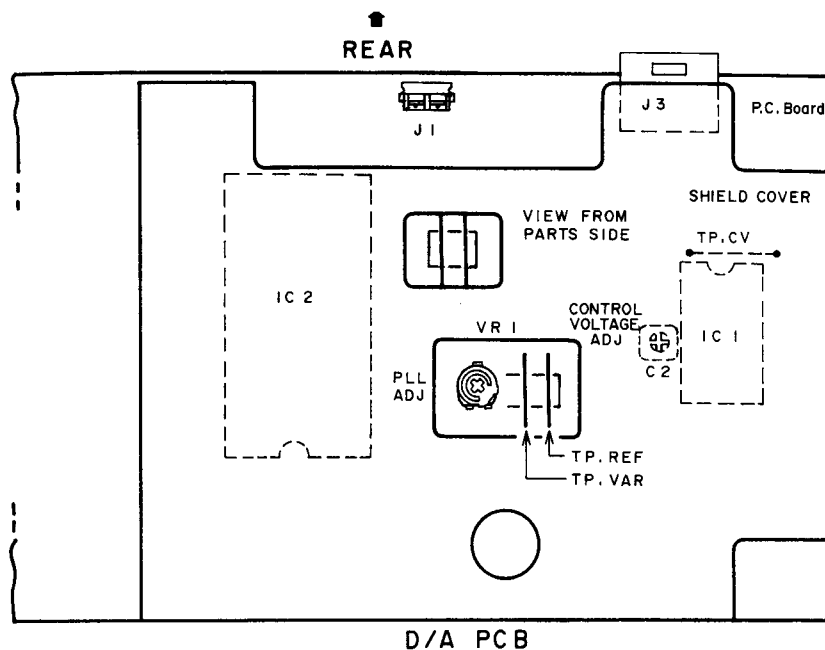


Fig 5-1 Test and adjustment Point

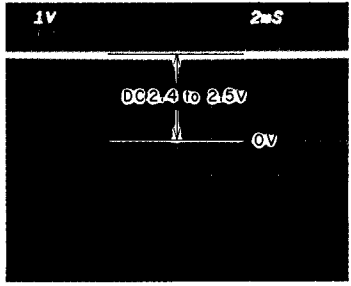
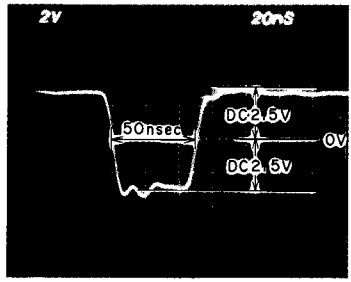
| Step | Adjustment Item | Test Point | Adjustment Point | Result and Remarks |
|------|---------------------|------------|------------------|---|
| 1 | VCO CONTROL VOLTAGE | TP.CV | C2 | <ul style="list-style-type: none"> Connect the CD player (at STOP mode) which has OPTICAL OUTPUT such as CD-M659 to CD OPTICAL INPUT. Connect an oscilloscope to TP.CV and adjust C2 (CONTROL VOLTAGE ADJ) so that the voltage on the oscilloscope is DC2.4 V to 2.5 V as in Fig 5-2  <p>The oscilloscope shows a flat line representing a DC voltage. The scale is 1V vertically and 2ns horizontally. The voltage level is indicated as DC2.4 to 2.5V, with 0V at the bottom.</p> |
| 2 | PLL | TP.VAR | VR1 | <ul style="list-style-type: none"> Connect the CD player (at STOP mode) which has OPTICAL OUTPUT such as CD-M659 to CD OPTICAL INPUT. Connect an oscilloscope to TP.VAR and adjust VR1 (PLL ADJ) so that the timing of waveform on the oscilloscope is 50ns as in Fig 5-3.  <p>The oscilloscope shows a square wave pulse. The scale is 2V vertically and 20ns horizontally. The pulse width is marked as 50nsec. The voltage levels are indicated as DC2.5V and DC2.5V, with 0V at the bottom.</p> |

Fig. 5-3

VI. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering.
If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

b) PC Board

2. HEAD BASE BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|----------|---------------|--------------------|
| 2-1x | BH-T2023A320A | HEAD BASE BLOCK |
| 2-2 | HP-H2206A010A | HEAD R/P PR4-8FU C |
| 2-3 | ZS-477876 | PAN20x03STL CMT |
| 2-4 | ZS-536488 | BID20x08STL CMT |
| 2-5 | ZG-402895 | SP CS ANGLE ADJUST |

SP (Service Parts) Classification

A small "x" indicates that this part is not shown in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure.

This number corresponds with the Figure Number.

6. MAIN PC BOARD

| REF. NO. | PART NO. | DESCRIPTION |
|----------|-----------|------------------------------|
| 6-IC1 | EI-324536 | IC HD14049BP |
| 6-IC2 | EI-336801 | IC MB8841-564M |
| 6-C1A | EC-338399 | C MMY V 223M 250AC [U,E,B,S] |
| 6-C1B | EC-350949 | C MMY V 223M 250DC [J] |
| 6-C1C | EC-338397 | C MMY V 223M 125AC [C,A] |
| 6-X1 | EI-318384 | OSC X'TAL NC-18C |

Symbols for primary destination

[A]: AAL(U.S.A.) [S]: SAA(Australia)
[B]: BEAB(England) [U]: U/T(Universal Area)
[C]: CSA(Canada) [V]: VDE(W. Germany)
[E]: CEE(Europe) [Y]: Custom Version
[J]: JPN(Japan)

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

△ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

△ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

| Ref. No. | Part No. | Description |
|----------|-------------|--|
| 1 | *BT-725449T | TRANS POW AM-M459(B,S) [B,S] [T501] |
| 2 | *BT-725450T | TRANS POW AM-M459(E,V) [E,V] [T501] |
| 3 | *BT-725451T | TRANS POW AM-M459(U) [U] [T501] |
| 4 | *BT-725472T | TRANS POW AM-M659(B,S) [B,S] [T501] |
| 5 | *BT-725473T | TRANS POW AM-M659(E,V) [E,V] [T501] |
| 6 | *BT-725474T | TRANS POW AM-M659(U) [U] [T501] |
| 7 | ED-725646T | D LED GRN [CD] |
| 8 | ED-725448T | D LED RED [MUTING] |
| 9 | ED-725460T | D LED SE-2422 |
| 10 | ED-360409 | D PHOTO PN323B |
| 11 | *ED-200213 | D SILICON DBA40C-K15 200/2.6A [AM-M459] |
| 12 | *ED-350748 | D SILICON DBA60C-K15 200/6.0A [AM-M659] |
| 13 | *ED-357754 | D SILICON DS135D 200/1.0A |
| 14 | ED-301911 | D SILICON H DS448 |
| 15 | ED-344280 | D SILICON H GMA-01-FY2 F05 |
| 16 | ED-318435 | D ZENER H RD13E B2 [AM-M459] |
| 17 | *ED-706156 | D ZENER H RD16E B3 |
| 18 | *ED-706116 | D ZENER H RD5.1E B2 |
| 19 | *ED-200967 | D ZENER H RD5.6E B2 |
| 20 | *ED-741184 | D ZENER H RD6.8E B3 |
| 21 | *EF-355226 | FUSE BET T 250V 1.00A [B] [AM-M459] |
| 22 | *EF-359007 | FUSE BET T 250V 1.25A [B] [AM-M659] |
| 23 | *EF-364518 | FUSE BET T 250V 2.50A [B] [AM-M459] |
| 24 | *EF-359225 | FUSE BET T 250V 3.15A [B] [AM-M659] |
| 25 | *EF-359086 | FUSE BET T 250V 4.00A [B] [AM-M659] |
| 26 | *EF-623125 | FUSE SEMKO T [E,V,S] [AM-M459] |
| 27 | *EF-623103 | FUSE SEMKO T 250V 1.00A [E,V,S] [AM-M459] |
| 28 | *EF-602550 | FUSE SEMKO T 250V 1.25A [E,V,S] [AM-M659] |
| 29 | *EF-691007 | FUSE SEMKO T 250V 3.15A [E,V,S] [AM-M659] |
| 30 | *EF-690996 | FUSE SEMKO T 250V 4.00A [E,V,S] [AM-M659] |
| 31 | *EF-308847 | FUSE TSC 125V 1.60A [U] [AM-M459] |
| 32 | *EF-306954 | FUSE TSC 125V 2.00A [U] [AM-M459] |
| 33 | EI-367572 | IC BA15218 |
| 34 | EI-353421 | IC BA6229 |
| 35 | EI-368253 | IC CXD1076 |
| 36 | EI-376354 | IC LC6543C-3471 A2054 |
| 37 | EI-368240 | IC LC7822 |
| 38 | EI-708084 | IC NJM4558DX |
| 39 | EI-368612 | IC PCM56P |
| 40 | EI-368254 | IC SN74LS624 |
| 41 | *EI-358554 | IC STK4152II [AM-M459] |
| 42 | *EI-366695 | IC STK4172II [AM-M659] |
| 43 | EI-332259 | IC TC4052BP |
| 44 | EI-360040 | IC TC74HCU04P |
| 45 | EI-367271 | IC UPC1490HA |
| 46 | EI-725455T | OSC X'TAL 4MHZ |
| 47 | EJ-368258 | SOCKET OPTICAL TORX172 [CD OPTICAL] |
| 48 | *EO-338409 | COIL LF FKOB160MH02 250UH [V] |
| 49 | *ES-725467T | SW PUSH |

| Ref. No. | Part No. | Description |
|----------|------------|--|
| 50 | *ES-349070 | [POWER SW] SW SELECTOR YKS11-0002 02-4 [U] [SW502] |
| 51 | ES-725456T | SW TACT [CD] |
| 52 | ET-369248 | TR DTA114YS |
| 53 | ET-360399 | TR DTC114TS |
| 54 | ET-354365 | TR DTC114YS |
| 55 | ET-357162 | TR FET 2SJ74 GR,BL,V |
| 56 | ET-375780 | TR FET 2SK381 E F05 |
| 57 | ET-308472 | TR 2SA1115 E,F,G F05 |
| 58 | *ET-353899 | TR 2SA1317 S,T,U |
| 59 | *ET-366365 | TR 2SB1185 E,F [AM-M459] |
| 60 | *ET-373210 | TR 2SB1187 E,F [AM-M659] |
| 61 | *ET-372112 | TR 2SC2060 R F05 |
| 62 | ET-336869 | TR 2SC2999 C,D |
| 63 | *ET-360067 | TR 2SC3330 T,U F05 |
| 64 | ET-351872 | TR 2SC3383 R,S |
| 65 | ET-349592 | TR 2SC3400 F05 |
| 66 | *ET-366677 | TR 2SD1761 E,F [AM-M659] |
| 67 | *ET-366581 | TR 2SD1762 E,F [AM-M459] |
| 68 | EV-725592T | VR ROTARY [BASS] |
| 69 | EV-725471T | VR ROTARY [BALANCE] |
| 70 | EV-383734J | VR SPL RK16Y12MA K104X2 [VOLUME] |
| 71 | *EZ-358816 | BATTERY LITHIUM BR2032-1HF |

2. P.C BOARD BLOCK

| Ref. No. | Part No. | Description |
|----------|------------|-----------------------------------|
| 1A | BA-725649T | PC MAIN BLK AM-M459(U) [U] |
| 1B | BA-725645T | PC MAIN BLK AM-M459(E,S) [E,S] |
| 1C | BA-725648T | PC MAIN BLK AM-M459(V) [V] |
| 1D | BA-725647T | PC MAIN BLK AM-M459(B) [B] |
| 1E | BA-725595T | PC MAIN BLK AM-M659(U) [U] |
| 1F | BA-725591T | PC MAIN BLK AM-M659(E,S) [E,S] |
| 1G | BA-725594T | PC MAIN BLK AM-M659(V) [V] |
| 1H | BA-725593T | PC MAIN BLK AM-M659(B) [B] |
| 2A | BA-725488T | PC CONTROL BLK AM-M459 |
| 2B | BA-725600T | PC CONTROL BLK AM-M659 |
| 3 | BA-725596T | PC D/A BLK AM-M659 [AM-M659] |

3. MAIN P.C BOARD

| Ref. No. | Part No. | Description |
|----------|------------|--|
| BD101A | *ED-200213 | D SILICON DBA40C-K15 200/2.6A [AM-M459] |
| BD101B | *ED-350748 | D SILICON DBA60C-K15 200/6.0A [AM-M659] |
| C126A | *EC-358538 | C EC V CUT 472M 45.0DC [AM-M459] |

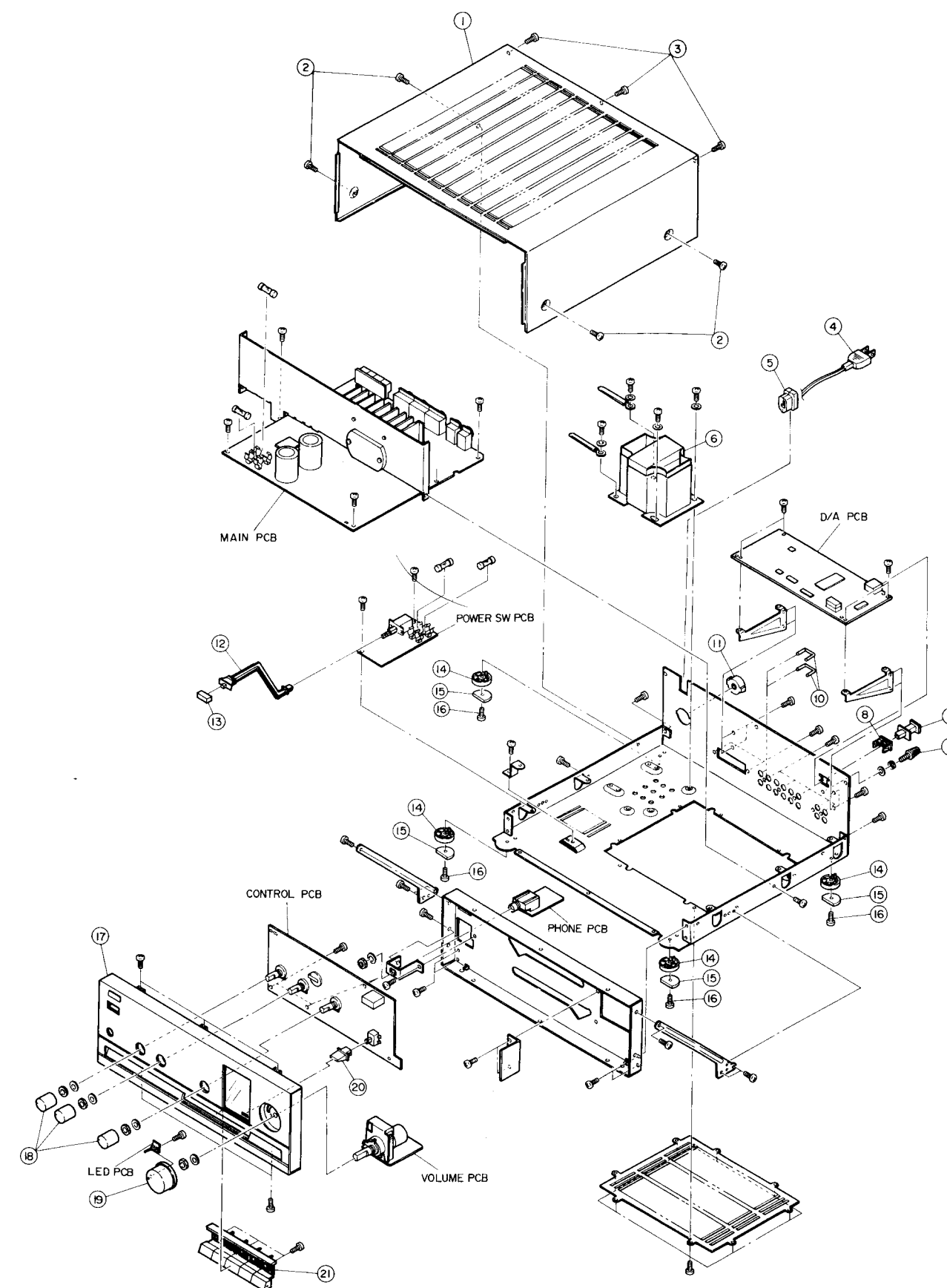
| Ref. No. | Part No. | Description |
|----------|-------------|---|
| C126B | *EC-361665 | C EC V CUT 472M 50.0DC [AM-M659] |
| C127A | *EC-358538 | C EC V CUT 472M 45.0DC [AM-M459] |
| C127B | *EC-361665 | C EC V CUT 472M 50.0DC [AM-M659] |
| C128 | *EC-326583 | C MMY V CUT CF921 473K 400DC |
| D101 | *ED-200967 | D ZENER H RD5.6E B2 |
| D102 | ED-301911 | D SILICON H DS448 |
| D103 | ED-301911 | D SILICON H DS448 |
| D104 | ED-301911 | D SILICON H DS448 |
| D105 | ED-301911 | D SILICON H DS448 |
| D106 | ED-301911 | D SILICON H DS448 |
| D107 | *ED-706156 | D ZENER H RD16E B3 |
| D108 | *ED-706156 | D ZENER H RD16E B3 |
| D109 | ED-318435 | D ZENER H RD13E B2 [AM-M459] |
| D110 | *ED-357754 | D SILICON DS135D 200/1.0A |
| D111 | ED-301911 | D SILICON H DS448 |
| D112 | ED-301911 | D SILICON H DS448 |
| D113 | ED-301911 | D SILICON H DS448 [AM-M659] |
| D114 | *ED-200967 | D ZENER H RD5.6E B2 [AM-M659] |
| D202 | ED-301911 | D SILICON H DS448 |
| D203 | ED-301911 | D SILICON H DS448 |
| D211 | ED-301911 | D SILICON H DS448 |
| D212 | ED-301911 | D SILICON H DS448 |
| IC101 | EI-708084 | IC NJM4558DX |
| IC102 | EI-368240 | IC LC7822 |
| IC103 | EI-353421 | IC BA6229 |
| IC104A | *EI-358554 | IC STK4152II [AM-M459] |
| IC104B | *EI-366695 | IC STK4172II [AM-M659] |
| J101 | EJ-725461T | PIN J 2P [PHONO] |
| J102A | EJ-720704 | PIN J. 4P [TUNER/CD][AM-M459] |
| J102B | EJ-725461T | PIN J 2P [TUNER][AM-M659] |
| J103 | EJ-720704 | PIN J. 4P [TAPE] |
| J104 | EJ-720704 | PIN J. 4P [DAT] |
| J105 | EJ-720704 | PIN J. 4P [PROCESSOR] |
| J106 | EJ-725677T | JACK DC SUPPLY [DC OUT][AM-M459] |
| L101 | *EO-337880 | COIL FIX 2 202AK-018 2R2K |
| L102 | EO-342936 | COIL BALUM [V] |
| L201 | *EO-337880 | COIL FIX 2 202AK-018 2R2K |
| R145 | ER-341940 | R OMF H S15 FS 1W 100J |
| R146 | ER-341940 | R OMF H S15 FS 1W 100J |
| R151 | *ER-724729T | R FUSE 1W 100 |
| R152 | *ER-724729T | R FUSE 1W 100 |
| R158 | ER-313517 | R OMF H S20 FS 2W 222J |
| R245 | ER-341940 | R OMF H S15 FS 1W 100J |
| R246 | ER-341940 | R OMF H S15 FS 1W 100J |
| TM101 | EJ-725590T | TERMINAL LEVER SP [SPEAKER TERMINAL] |
| TR101 | ET-351872 | TR 2SC3383 R,S |
| TR102 | ET-351872 | TR 2SC3383 R,S |
| TR103 | ET-369248 | TR DTA114YS |
| TR104 | ET-360399 | TR DTC114TS |
| TR105 | ET-375780 | TR FET 2SK381 E F05 |
| TR106 | ET-375780 | TR FET 2SK381 E F05 |
| TR107A | *ET-366581 | TR 2SD1762 E,F [AM-M459] |
| TR107B | *ET-366677 | TR 2SD1761 E,F [AM-M659] |
| TR108A | *ET-366365 | TR 2SB1185 E,F [AM-M459] |
| TR108B | *ET-373210 | TR 2SB1187 E,F [AM-M659] |
| TR109 | *ET-360067 | TR 2SC3330 T,U F05 |
| TR110 | *ET-353899 | TR 2SA1317 S,T,U |
| TR111 | ET-351872 | TR 2SC3383 R,S [AM-M459] |

| Ref. No. | Part No. | Description |
|----------|------------|---|
| TR112 | ET-369248 | TR DTA114YS |
| TR113 | ET-369248 | TR DTA114YS |
| TR114 | ET-366581 | TR 2SD1762 E,F [AM-M659] |
| TR115 | ET-375780 | TR FET 2SK381 E F05 |
| TR116 | ET-375780 | TR FET 2SK381 E F05 |
| TR117 | ET-369248 | TR DTA114YS |
| TR205 | ET-375780 | TR FET 2SK381 E F05 |
| TR206 | ET-375780 | TR FET 2SK381 E F05 |
| TR215 | ET-375780 | TR FET 2SK381 E F05 |
| TR216 | ET-375780 | TR FET 2SK381 E F05 |
| F101A | *EF-306954 | FUSE TSC 125V 2.00A [U][AM-M459] |
| F101B | *EF-623125 | FUSE SEMKO T [E.V.S][AM-M459] |
| F101C | *EF-364518 | FUSE BET T 250V 2.50A [B][AM-M459] |
| F101D | *EF-306954 | FUSE TSC 125V 2.00A [U][AM-M659] |
| F101E | *EF-691007 | FUSE SEMKO T 250V 3.15A [E.V.S][AM-M659] |
| F101F | *EF-359225 | FUSE BET T 250V 3.15A [B][AM-M659] |
| F103A | *EF-691007 | FUSE SEMKO T 250V 3.15A [E.V.S][AM-M459] |
| F103B | *EF-359225 | FUSE BET T 250V 3.15A [B][AM-M459] |
| F103C | *EF-690996 | FUSE SEMKO T 250V 4.00A [E.V.S][AM-M659] |
| F103D | *EF-359086 | FUSE BET T 250V 4.00A [B][AM-M659] |
| F104A | *EF-691007 | FUSE SEMKO T 250V 3.15A [E.V.S][AM-M459] |
| F104B | *EF-359225 | FUSE BET T 250V 3.15A [B][AM-M459] |
| F104C | *EF-690996 | FUSE SEMKO T 250V 4.00A [E.V.S][AM-M659] |
| F104D | *EF-359086 | FUSE BET T 250V 4.00A [B][AM-M659] |
| F201A | *EF-306954 | FUSE TSC 125V 2.00A [U][AM-M459] |
| F201B | *EF-623125 | FUSE SEMKO T [E.V.S][AM-M459] |
| F201C | *EF-364518 | FUSE BET T 250V 2.50A [B][AM-M459] |
| F201D | *EF-306954 | FUSE TSC 125V 2.00A [U][AM-M659] |
| F201E | *EF-691007 | FUSE SEMKO T 250V 3.15A [E.V.S][AM-M659] |
| F201F | *EF-359225 | FUSE BET T 250V 3.15A [B][AM-M659] |

4. CONTROL P.C BOARD

| Ref. No. | Part No. | Description |
|----------|------------|------------------------------|
| BT101 | *EZ-358816 | BATTERY LITHIUM BR2032-1HF |
| D301 | *ED-706116 | D ZENER H RD5.1E B2 |
| D302 | ED-301911 | D SILICON H DS448 |
| D303 | ED-301911 | D SILICON H DS448 |
| D304 | ED-301911 | D SILICON H DS448 |
| D305 | ED-301911 | D SILICON H DS448 |
| D306 | *ED-741184 | D ZENER H RD6.8E B3 |
| D307 | ED-725646T | D LED GRN [CD] |
| D308 | ED-725646T | D LED GRN [PHONO] |
| D309 | ED-725646T | D LED GRN [TUNER] |
| D310 | ED-725646T | D LED GRN [DAT/VCR] |
| D311 | ED-725646T | D LED GRN [TAPE] |
| D312 | ED-725646T | D LED GRN [SOURCE DIRECT] |

FINAL ASSEMBLY BLOCK



PARTS LIST

| Ref. No. | Part No. | Description |
|----------|------------|---------------------------------|
| D313 | ED-725448T | D LED RED [MUTING] |
| D314 | ED-725646T | D LED GRN [AM-M659] |
| D315 | ED-725646T | D LED GRN [AM-M659] |
| IC302 | EI-376354 | IC LC6543C-3471 A2054 |
| IC303 | EI-708084 | IC NJM4558DX |
| SW301 | ES-725456T | SW TACT [CD] |
| SW302 | ES-725456T | SW TACT [PHONO] |
| SW303 | ES-725456T | SW TACT [TUNER] |
| SW304 | ES-725456T | SW TACT [DAT/VCR] |
| SW305 | ES-725456T | SW TACT [TAPE] |
| SW306 | ES-725457T | SW PUSH [SOURCE DIRECT] |
| TR301 | ET-360067 | TR 2SC3330 T,U F05 |
| TR302 | ET-360067 | TR 2SC3330 T,U F05 |
| TR303 | *ET-372112 | TR 2SC2060 R F05 |
| TR304 | ET-360399 | TR DTC114TS |
| TR305 | ET-354365 | TR DTC114YS |
| TR306 | ET-360399 | TR DTC114TS |
| TR307 | ET-360067 | TR 2SC3330 T,U F05 [AM-M659] |
| TR308 | ET-354365 | TR DTC114YS [AM-M659] |
| TR309 | ET-360067 | TR 2SC3330 T,U F05 |
| VR301 | EV-725592T | VR ROTARY [BASS] |
| VR302 | EV-725592T | VR ROTARY [TREBLE] |
| VR303 | EV-725471T | VR ROTARY [BALANCE] |
| X101 | EI-725455T | OSC X'TAL 4MHZ |

5. REMOTE P.C BOARD

| Ref. No. | Part No. | Description |
|----------|-----------|----------------|
| IC301 | EI-367271 | IC UPC1490HA |
| PD301 | ED-360409 | D PHOTO PN323B |

6. POWER SW P.C BOARD

| Ref. No. | Part No. | Description |
|----------|------------|--|
| C501A | *EC-320548 | C CE V F 103Z 250AC [U] |
| C501B | *EC-338496 | C CE V FZ 472P 400AC [E.V,B,S] |
| F501A | *EF-308847 | FUSE TSC 125V 1.60A [U] [AM-M459] |
| F501B | *EF-623103 | FUSE SEMKO T 250V 1.00A [E.V,S] [AM-M459] |
| F501C | *EF-355226 | FUSE BET T 250V 1.00A [B] [AM-M459] |
| F501D | *EF-306954 | FUSE TSC 125V 2.00A [U] [AM-M659] |
| F501E | *EF-602550 | FUSE SEMKO T 250V 1.25A [E.V,S] [AM-M659] |
| F501F | *EF-359007 | FUSE BET T 250V 1.25A [B] [AM-M659] |
| F502A | *EF-308847 | FUSE TSC 125V 1.60A [U] [AM-M459] |
| F502B | *EF-306954 | FUSE TSC 125V 2.00A [U] [AM-M659] |

| Ref. No. | Part No. | Description |
|----------|-------------|----------------------------------|
| L501 | *EO-338409 | COIL LF FKOB160MH02 250UH [V] |
| SW501 | *ES-725467T | SW PUSH [POWER SW] |

7. PHONE P.C BOARD

| Ref. No. | Part No. | Description |
|----------|------------|---------------------|
| J107 | EJ-725469T | PHONE J [PHONES] |

8. VOLUME P.C BOARD

| Ref. No. | Part No. | Description |
|----------|------------|-------------------------------------|
| VR101 | EV-383734J | VR SPL RK16Y12MA K104X2 [VOLUME] |

9. LED P.C BOARD

| Ref. No. | Part No. | Description |
|----------|------------|---------------|
| D501 | ED-725460T | D LED SE-2422 |

10. D/A P.C BOARD (AM-M659 ONLY)

| Ref. No. | Part No. | Description |
|----------|-----------|--|
| D1 | ED-344280 | D SILICON H GMA-01-FY2 F05 |
| D2 | ED-344280 | D SILICON H GMA-01-FY2 F05 |
| D3 | ED-344280 | D SILICON H GMA-01-FY2 F05 |
| D4 | ED-301911 | D SILICON H DS448 |
| D5 | ED-344280 | D SILICON H GMA-01-FY2 F05 |
| D6 | ED-344280 | D SILICON H GMA-01-FY2 F05 |
| IC1 | EI-368254 | IC SN74LS624 |
| IC2 | EI-368253 | IC CXD1076 |
| IC3 | EI-360040 | IC TC74HCU04P |
| IC4 | EI-368612 | IC PCM56P |
| IC5 | EI-332259 | IC TC4052BP |
| IC6 | EI-367572 | IC BA15218 |
| IC7 | EI-367572 | IC BA15218 |
| J3 | EJ-368258 | SOCKET OPTICAL TORX172 [CD OPTICAL] |
| L1 | EO-345999 | COIL FIX 1 EL0606RA T05 181J |
| L2 | EO-345909 | COIL FIX 1 LAL03KH 4R7K |
| TR1 | ET-354365 | TR DTC114YS |
| TR2 | ET-336869 | TR 2SC2999 C,D |
| TR3 | ET-336869 | TR 2SC2999 C,D |
| TR4 | ET-336869 | TR 2SC2999 C,D |
| TR5 | ET-357162 | TR FET 2SJ74 GR,BL,V |
| TR6 | ET-349592 | TR 2SC3400 F05 |
| TR7 | ET-308472 | TR 2SA1115 E,F,G F05 |
| TR8 | ET-349592 | TR 2SC3400 F05 |
| TR9 | ET-351872 | TR 2SC3383 R,S |
| TR10 | ET-351872 | TR 2SC3383 R,S |
| TR11 | ET-349592 | TR 2SC3400 F05 |
| TR12 | ET-308472 | TR 2SA1115 E,F,G F05 |
| VL1 | EO-362920 | COIL VARI 1 25-5430-13 WHITE |
| VL2 | EO-362921 | COIL VARI 1 25-5431-13 RED |
| VL3 | EO-362922 | COIL VARI 1 25-5432-13 BLACK |
| VR1 | EV-337992 | R S-FIX H RVF8P01 0.10W 502 |

11. FINAL ASSEMBLY BLOCK

| Ref. No. | Part No. | Description |
|----------|-------------|--|
| 1 | SP-725658J | COVER UPPER-B (S,P) |
| 2 | ZS-322580 | ST BID40X08STL BNI |
| 3 | ZS-305827 | ST BID30X06STL BNI |
| 4A | *EW-374894 | AC CORD 2C VM-0129A,VFF U/T [U] |
| 4B | *EW-347897 | AC CORD 2 CORES VM0364,LCFL EV [E,V] |
| 4C | *EW-346249 | AC CORD 2 CORES LCFL2X0.75 B [B] |
| 4D | *EW-347898 | AC CORD 2 CORES VM-0436,LCFL S [S] |
| 5 | *EZ-371605 | BUSH CORD 2271 |
| 6A | *BT-725451T | TRANS POW AM-M459(U) [U] [T501] |
| 6B | *BT-725450T | TRANS POW AM-M459(E,V) [E,V] [T501] |
| 6C | *BT-725449T | TRANS POW AM-M459(B,S) [B,S] [T501] |
| 6D | *BT-725474T | TRANS POW AM-M659(U) [U] [T501] |
| 6E | *BT-725473T | TRANS POW AM-M659(E,V) [E,V] [T501] |
| 6F | *BT-725472T | TRANS POW AM-M659(B,S) [B,S] [T501] |
| 7 | EJ-722929T | TERMINAL EARTH |
| 8 | SE-375348 | ESCUTCHEON |
| 9 | SZ-725384J | CAP OPTICAL PROTECTOR [AM-M659] |
| 10 | EJ-720690 | PLUG SHORT PIN |
| 11 | *ES-349070 | SW SELECTOR YKS11-0002 02-4 [U] [SW502] |
| 12 | MZ-725489T | JOINT POWER |
| 13 | SK-725482T | KNOB POWER-B |
| 14 | SA-725458T | FOOT (ABS) |
| 15 | SA-725452T | CUSHION FOOT (GUM) |
| 16 | ZS-305827 | ST BID30X06STL BNI |
| 17A | BD-725651T | PANEL FRONT BLK AM-M459-B |
| 17B | BD-725597T | PANEL FRONT BLK AM-M659-B |
| 18 | SK-725598T | KNOB TONE-B |
| 19 | SK-725599T | KNOB VOL-B |
| 20 | SK-725476T | KNOB PUSH-B |
| 21 | SK-725650T | KNOB SELECTOR-B |

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

12. ACCESSARY

| Ref. No. | Part No. | Description |
|----------|------------|-----------------------------------|
| 1A | AX-725447T | REMOCON UNIT RC-S459 [AM-M459] |
| 1B | AX-725470T | REMOCON UNIT RC-S659 [AM-M659] |

INDEX

| Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. |
|------------|----------|------------|----------|------------|----------|------------|----------|
| AX-725447T | 12-1A | ED-725646T | 1-7 | EI-725455T | 4-X101 | ET-366581 | 3-TR107A |
| AX-725470T | 12-1B | ED-725646T | 4-D307 | EJ-368258 | 1-47 | ET-366581 | 3-TR114 |
| BA-725488T | 2-2A | ED-725646T | 4-D308 | EJ-368258 | 10-J3 | ET-366677 | 1-66 |
| BA-725591T | 2-1F | ED-725646T | 4-D309 | EJ-720690 | 11-10 | ET-366677 | 3-TR107B |
| BA-725593T | 2-1H | ED-725646T | 4-D310 | EJ-720704 | 3-J102A | ET-369248 | 1-52 |
| BA-725594T | 2-1G | ED-725646T | 4-D311 | EJ-720704 | 3-J103 | ET-369248 | 3-TR103 |
| BA-725595T | 2-1E | ED-725646T | 4-D312 | EJ-720704 | 3-J104 | ET-369248 | 3-TR112 |
| BA-725596T | 2-3 | ED-725646T | 4-D314 | EJ-720704 | 3-J105 | ET-369248 | 3-TR113 |
| BA-725600T | 2-2B | ED-725646T | 4-D315 | EJ-722929T | 11-7 | ET-369248 | 3-TR117 |
| BA-725645T | 2-1B | ED-741184 | 1-20 | EJ-725461T | 3-J101 | ET-372112 | 1-61 |
| BA-725647T | 2-1D | ED-741184 | 4-D306 | EJ-725461T | 3-J102B | ET-372112 | 4-TR303 |
| BA-725648T | 2-1C | EF-306954 | 1-32 | EJ-725469T | 7-J107 | ET-373210 | 1-60 |
| BA-725649T | 2-1A | EF-306954 | 3-F101A | EJ-725590T | 3-TM101 | ET-373210 | 3-TR108B |
| BD-725597T | 11-17B | EF-306954 | 3-F101D | EJ-725677T | 3-J106 | ET-375780 | 1-56 |
| BD-725651T | 11-17A | EF-306954 | 3-F201A | EO-337880 | 3-L101 | ET-375780 | 3-TR105 |
| BT-725449T | 1-1 | EF-306954 | 3-F201D | EO-337880 | 3-L201 | ET-375780 | 3-TR106 |
| BT-725449T | 11-6C | EF-306954 | 6-F501D | EO-338409 | 1-48 | ET-375780 | 3-TR115 |
| BT-725450T | 1-2 | EF-306954 | 6-F502B | EO-338409 | 6-L501 | ET-375780 | 3-TR116 |
| BT-725450T | 11-6B | EF-308847 | 1-31 | EO-342936 | 3-L102 | ET-375780 | 3-TR205 |
| BT-725451T | 1-3 | EF-308847 | 6-F501A | EO-345909 | 10-L2 | ET-375780 | 3-TR206 |
| BT-725451T | 11-6A | EF-308847 | 6-F502A | EO-345999 | 10-L1 | ET-375780 | 3-TR215 |
| BT-725472T | 1-4 | EF-355226 | 1-21 | EO-362920 | 10-VL1 | ET-375780 | 3-TR216 |
| BT-725472T | 11-6F | EF-355226 | 6-F501C | EO-362921 | 10-VL2 | EV-337992 | 10-VR1 |
| BT-725473T | 1-5 | EF-359007 | 1-22 | EO-362922 | 10-VL3 | EV-383734J | 1-70 |
| BT-725473T | 11-6E | EF-359007 | 6-F501F | ER-313517 | 3-R158 | EV-383734J | 8-VR101 |
| BT-725474T | 1-6 | EF-359086 | 1-25 | ER-341940 | 3-R145 | EV-725471T | 1-69 |
| BT-725474T | 11-6D | EF-359086 | 3-F103D | ER-341940 | 3-R146 | EV-725471T | 4-VR303 |
| EC-320548 | 6-C501A | EF-359086 | 3-F104D | ER-341940 | 3-R245 | EV-725592T | 1-68 |
| EC-326583 | 3-C128 | EF-359225 | 1-24 | ER-341940 | 3-R246 | EV-725592T | 4-VR301 |
| EC-338496 | 6-C501B | EF-359225 | 3-F101F | ER-724729T | 3-R151 | EV-725592T | 4-VR302 |
| EC-358538 | 3-C126A | EF-359225 | 3-F103B | ER-724729T | 3-R152 | EW-346249 | 11-4C |
| EC-358538 | 3-C127A | EF-359225 | 3-F104B | ES-349070 | 1-50 | EW-347897 | 11-4B |
| EC-361665 | 3-C126B | EF-359225 | 3-F201F | ES-349070 | 11-11 | EW-347898 | 11-4D |
| EC-361665 | 3-C127B | EF-364518 | 1-23 | ES-725456T | 1-51 | EW-374894 | 11-4A |
| ED-200213 | 1-11 | EF-364518 | 3-F101C | ES-725456T | 4-SW301 | EZ-358816 | 1-71 |
| ED-200213 | 3-BD101A | EF-364518 | 3-F201C | ES-725456T | 4-SW302 | EZ-358816 | 4-BT101 |
| ED-200967 | 1-19 | EF-602550 | 1-28 | ES-725456T | 4-SW303 | EZ-371605 | 11-5 |
| ED-200967 | 3-D101 | EF-602550 | 6-F501E | ES-725456T | 4-SW304 | MZ-725489T | 11-12 |
| ED-200967 | 3-D114 | EF-623103 | 1-27 | ES-725456T | 4-SW305 | SA-725452T | 11-15 |
| ED-301911 | 1-14 | EF-623103 | 6-F501B | ES-725457T | 4-SW306 | SA-725458T | 11-14 |
| ED-301911 | 3-D102 | EF-623125 | 1-26 | ES-725467T | 1-49 | SE-375348 | 11-8 |
| ED-301911 | 3-D103 | EF-623125 | 3-F101B | ES-725467T | 6-SW501 | SK-725476T | 11-20 |
| ED-301911 | 3-D104 | EF-623125 | 3-F201B | ET-308472 | 1-57 | SK-725482T | 11-13 |
| ED-301911 | 3-D105 | EF-690996 | 1-30 | ET-308472 | 10-TR7 | SK-725598T | 11-18 |
| ED-301911 | 3-D106 | EF-690996 | 3-F103C | ET-308472 | 10-TR12 | SK-725599T | 11-19 |
| ED-301911 | 3-D111 | EF-690996 | 3-F104C | ET-336869 | 1-62 | SK-725650T | 11-21 |
| ED-301911 | 3-D112 | EF-691007 | 1-29 | ET-336869 | 10-TR2 | SP-725658J | 11-1 |
| ED-301911 | 3-D113 | EF-691007 | 3-F101E | ET-336869 | 10-TR3 | SZ-725384J | 11-9 |
| ED-301911 | 3-D202 | EF-691007 | 3-F103A | ET-336869 | 10-TR4 | ZS-305827 | 11-3 |
| ED-301911 | 3-D203 | EF-691007 | 3-F104A | ET-349592 | 1-65 | ZS-305827 | 11-16 |
| ED-301911 | 3-D211 | EF-691007 | 3-F201E | ET-349592 | 10-TR6 | ZS-322580 | 11-2 |
| ED-301911 | 3-D212 | EI-332259 | 1-43 | ET-349592 | 10-TR8 | | |
| ED-301911 | 4-D302 | EI-332259 | 10-IC5 | ET-349592 | 10-TR11 | | |
| ED-301911 | 4-D303 | EI-353421 | 1-34 | ET-351872 | 1-64 | | |
| ED-301911 | 4-D304 | EI-353421 | 3-IC103 | ET-351872 | 3-TR101 | | |
| ED-301911 | 4-D305 | EI-358554 | 1-41 | ET-351872 | 3-TR102 | | |
| ED-301911 | 10-D4 | EI-358554 | 3-IC104A | ET-351872 | 3-TR111 | | |
| ED-318435 | 1-16 | EI-360040 | 1-44 | ET-351872 | 10-TR9 | | |
| ED-318435 | 3-D109 | EI-360040 | 10-IC3 | ET-351872 | 10-TR10 | | |
| ED-344280 | 1-15 | EI-366695 | 1-42 | ET-353899 | 1-58 | | |
| ED-344280 | 10-D1 | EI-366695 | 3-IC104B | ET-353899 | 3-TR110 | | |
| ED-344280 | 10-D2 | EI-367271 | 1-45 | ET-354365 | 1-54 | | |
| ED-344280 | 10-D3 | EI-367271 | 5-IC301 | ET-354365 | 4-TR305 | | |
| ED-344280 | 10-D5 | EI-367572 | 1-33 | ET-354365 | 4-TR308 | | |
| ED-344280 | 10-D6 | EI-367572 | 10-IC6 | ET-354365 | 10-TR1 | | |
| ED-350748 | 1-12 | EI-367572 | 10-IC7 | ET-357162 | 1-55 | | |
| ED-350748 | 3-BD101B | EI-368240 | 1-37 | ET-357162 | 10-TR5 | | |
| ED-357754 | 1-13 | EI-368240 | 3-IC102 | ET-360067 | 1-63 | | |
| ED-357754 | 3-D110 | EI-368253 | 1-35 | ET-360067 | 3-TR109 | | |
| ED-360409 | 1-10 | EI-368253 | 10-IC2 | ET-360067 | 4-TR301 | | |
| ED-360409 | 5-PD301 | EI-368254 | 1-40 | ET-360067 | 4-TR302 | | |
| ED-706116 | 1-18 | EI-368254 | 10-IC1 | ET-360067 | 4-TR307 | | |
| ED-706116 | 4-D301 | EI-368612 | 1-39 | ET-360067 | 4-TR309 | | |
| ED-706156 | 1-17 | EI-368612 | 10-IC4 | ET-360399 | 1-53 | | |
| ED-706156 | 3-D107 | EI-376354 | 1-36 | ET-360399 | 3-TR104 | | |
| ED-706156 | 3-D108 | EI-376354 | 4-IC302 | ET-360399 | 4-TR304 | | |
| ED-725448T | 1-8 | EI-708084 | 1-38 | ET-360399 | 4-TR306 | | |
| ED-725448T | 4-D313 | EI-708084 | 3-IC101 | ET-366365 | 1-59 | | |
| ED-725460T | 1-9 | EI-708084 | 4-IC303 | ET-366365 | 3-TR108A | | |
| ED-725460T | 9-D501 | EI-725455T | 1-46 | ET-366581 | 1-67 | | |

ABBREVIATIONS (AMPLIFIER)

| ABBREVIATIONS | EXPLANATION |
|---------------|-----------------------------|
| A | Analog |
| AC | Alternating Current |
| AMP | AMPlifier |
| CD | Compact Disc |
| COM | COMmon |
| D | Digital |
| D/A | Digital to Analog |
| DAC | Digital to Analog Converter |
| DAT | Digital Audio Tape recorder |
| DC | Direct Current |
| EQ | EQualizer |
| GND | GrouND |
| L | Left |
| L.P.F, LPF | Low Pass Filter |
| LED | Light Emitting Diode |
| MC | Moving Coil |
| MM | Moving Magnet |
| PCB | Printed Circuit Board |
| PLL | Phase Locked Loop |
| R | Right |
| REC | RECORD |
| REG | REGulator |
| SW | SWitch |
| TR | TRansistor |
| V.AMP | Voltage AMPlifier |
| VCO | Voltage Control Oscillator |
| VCR | Video Cassette Recorder |
| V. DISC | Video DISC |
| VR | Variable Resistance |
| VTR | Video Tape Recorder |

AKAI ELECTRIC CO., LTD.

12-14, 2-Chome, Higashi-Kojiya, Ohta-ku, Tokyo, Japan
 SERVICE DEPARTMENT TEL: Tokyo (745) 9884 TELEX: J26261
 Printed No. 880429-G1-3300 Printed Date: May 24, 1988
 350 Printed in Japan

AKAI

MODEL AM-M459

MODEL AM-M659

SCHEMATIC DIAGRAM AND PC BOARDS

TABLE OF CONTENTS

| | |
|--|----|
| 1. ICs..... | 2 |
| 2. AM-M459/659 BLOCK DIAGRAM | 4 |
| 3. AM-659 D/A CONVERTER BLOCK DIAGRAM | 5 |
| 4. AM-M459 POWER SWITCH PC BOARD..... | 6 |
| 5. AM-M459 CONTROL PC BOARD..... | 7 |
| 6. AM-M459 MAIN PC BOARD AND VOLUME PC BOARD | 8 |
| 7. AM-M459 CONNECTION DIAGRAM..... | 9 |
| 8. AM-M659 CONNECTION DIAGRAM..... | 10 |
| 9. AM-M659 MAIN PC BOARD AND VOLUME PC BOARD | 11 |
| 10. AM-M659 CONTROL PC BOARD..... | 12 |
| 11. AM-M659 POWER SWITCH PC BOARD..... | 13 |
| 12. AM-M659 D/A SCHEMATIC DIAGRAM..... | 14 |
| 13. AM-M659 D/A PC BOARD | 15 |

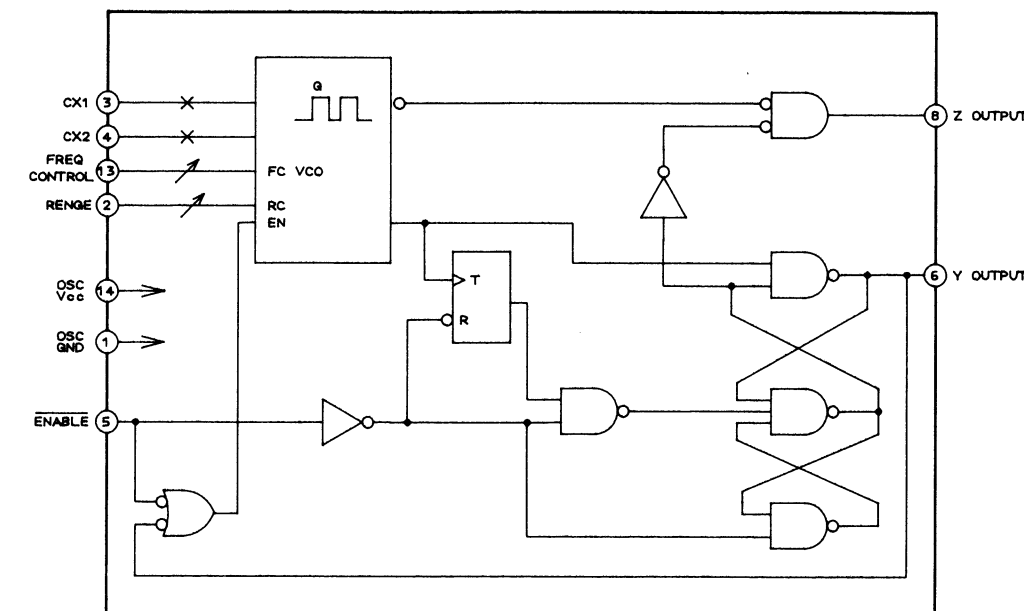
The block diagram illustrates the internal architecture of the 6800 microprocessor, showing the flow of data and control signals between various functional blocks and the external pins (1-28).

Functional Blocks and Connections:

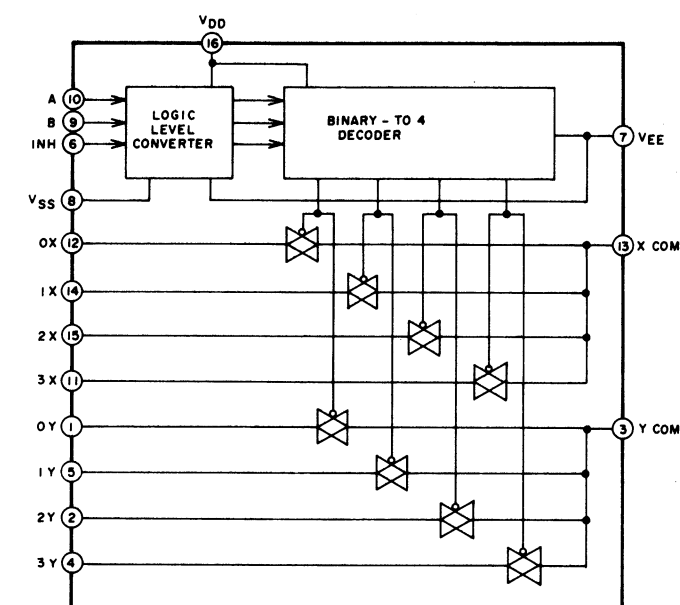
- EDGE DETECTOR:** Receives input from pin 15 (RX) and outputs to the PHASE COMPARATOR and the BIPHASE DEMODULATOR.
- 1/2:** Receives input from pin 9 (RXCP) and outputs to the PHASE COMPARATOR and the BIPHASE DEMODULATOR.
- PHASE COMPARATOR:** Receives inputs from the EDGE DETECTOR and the 1/2 block. It outputs to pin 8 (REF) and pin 6 (VAR).
- UNLOCK DETECTOR:** Receives inputs from pin 5 (DISCHG), pin 13 (UNLOCK), pin 19 (CS), and pin 17 (SLAV). It outputs to pin 5 (DISCHG), pin 13 (UNLOCK), pin 19 (CS), and pin 17 (SLAV).
- OUTPUT LATCHING:** Receives inputs from pin 22 (VBIT), pin 23 (UBIT), and pin 24 (CBIT). It outputs to pin 22 (VBIT), pin 23 (UBIT), and pin 24 (CBIT).
- CBIT DETECTOR:** Receives inputs from pin 25 (EMPH), pin 26 (COPY), pin 27 (ID1), and pin 28 (ID0). It outputs to pin 25 (EMPH), pin 26 (COPY), pin 27 (ID1), and pin 28 (ID0).
- BIPHASE DEMODULATOR:** Receives inputs from the EDGE DETECTOR and the 1/2 block. It outputs to pin 12 (BLK-ID), pin 16 (TXCP), and the TIMING GENERATOR.
- COUNTER:** Receives input from the BIPHASE DEMODULATOR and outputs to the TIMING GENERATOR.
- TIMING GENERATOR:** Receives inputs from the BIPHASE DEMODULATOR and the COUNTER. It outputs to pin 1 (BCK), pin 3 (LRCK), pin 4 (WCK), pin 10 (APTL), and pin 11 (APTR).
- SHIFT REGISTER (Top):** Receives input from the BIPHASE DEMODULATOR and outputs to the BUFFER.
- BUFFER:** Receives inputs from the top SHIFT REGISTER and pin 14 (LSBF). It outputs to the bottom SHIFT REGISTER.
- SHIFT REGISTER (Bottom):** Receives input from the BUFFER and outputs to pin 2 (DATA).

| Pin No. | I/O | Name | Explanation of terminal |
|---------|-----|----------------------------|---|
| 1 | O | BCK | Shift clock output of digital audio data. |
| 2 | O | DATA | Serial output of demodulated digital audio data. |
| 3 | O | LRCK | Descriminate pulse output of L or R channels. |
| 4 | O | WCK | Word clock output. |
| 5 | O | $\overline{\text{DISCHG}}$ | Lock trigger pulse output when external PLL became unlock condition. |
| 6 | O | VAR | Low-Active pulse output to setting the sink current of external PLL. |
| 7 | — | V _{ss} | GND |
| 8 | O | REF | High-Active pulse output to setting the source current of external PLL. |
| 9 | I | RXCP | Clock input which abstracted by PLL. (256fs) |
| 10 | O | APTL | Pulse output for aperture correction. |
| 11 | O | APTR | Pulse output for aperture correction. |
| 12 | O | BLK-ID | Block detection pulse output for synchronizing the C-bit block. |
| 13 | O | UNLOCK | Lock detection output of PLL. (L = LOCK) |
| 14 | I | LSBF | Audio serial data first select. “H”: LSB first. “L”: MSB first. |
| 15 | I | RX | Digital I/O data input which modulated by digital audio interface format. |
| 16 | O | TXCP | Clock (128 fs) output which using the master clock of external instruments. |
| 17 | I | SLAV | Control signal (“L” = Normal mode, “H” = Hi-impeadance mode) |
| 18 | I | TEST | Control signal input of Normal or test modes. (“H” = TEST mode, “L” = NORMAL mode.) |
| 19 | I | $\overline{\text{CS}}$ | Clock input for mark the $\overline{\text{DISCHG}}$ pulse for PLL. |
| 20 | I | $\overline{\text{RCH}}$ | Control input for the polarity set of LRCK. (“H” = L ch → High, R ch → Low, “L” = L ch → Low, R ch → High) |
| 21 | — | VDD | Power supply |
| 22 | O | VBIT | Validity flag (V-bit) output. |
| 23 | O | UBIT | User definable data (U-bit) output. |
| 24 | O | CBIT | Channel status data (C-bit) output. |
| 25 | O | EMPH | Emphasis information output. (“H” = Emphasis ON) |
| 26 | O | COPY | Copy inhibit information output. (“L” = Inhibit) |
| 27 | O | ID1 | ID1 output |
| 28 | O | ID2 | ID2 output |

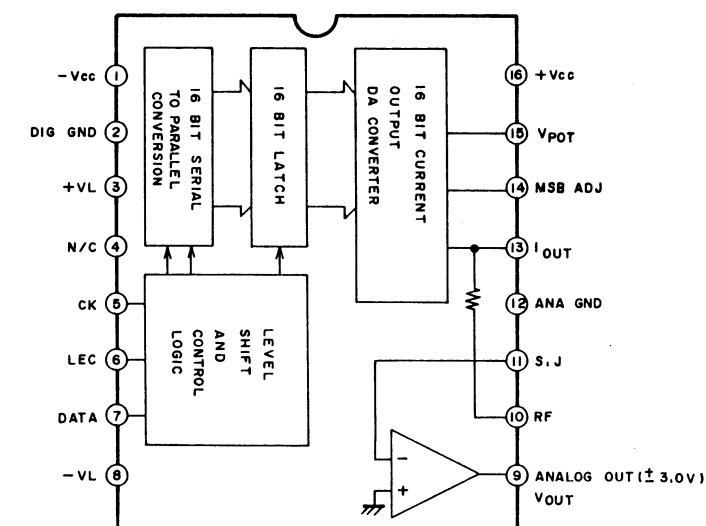
SN74LS624 (VCO)

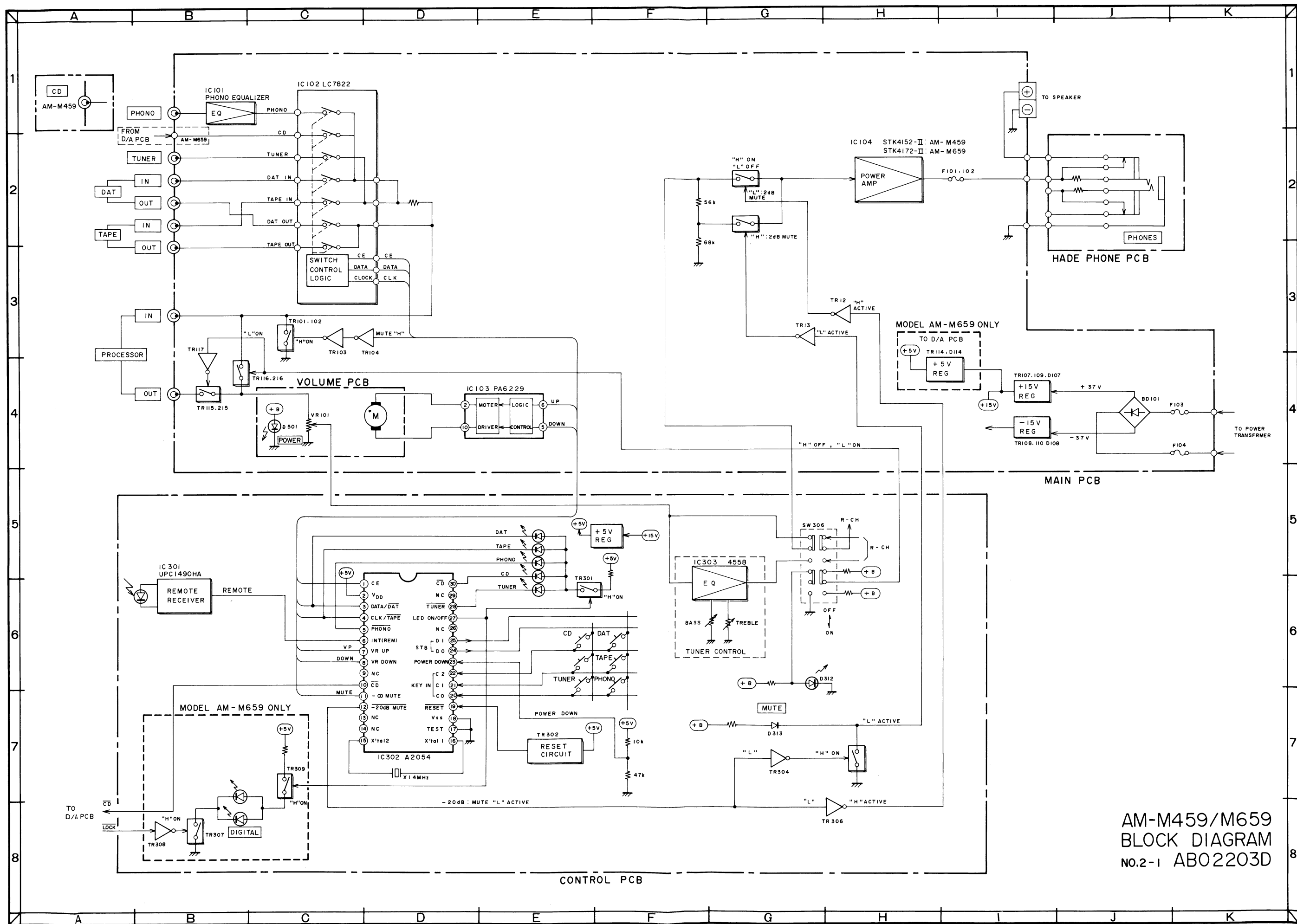


TC4052 (Differential 4 channel Multiplexer/Demultiplexer)

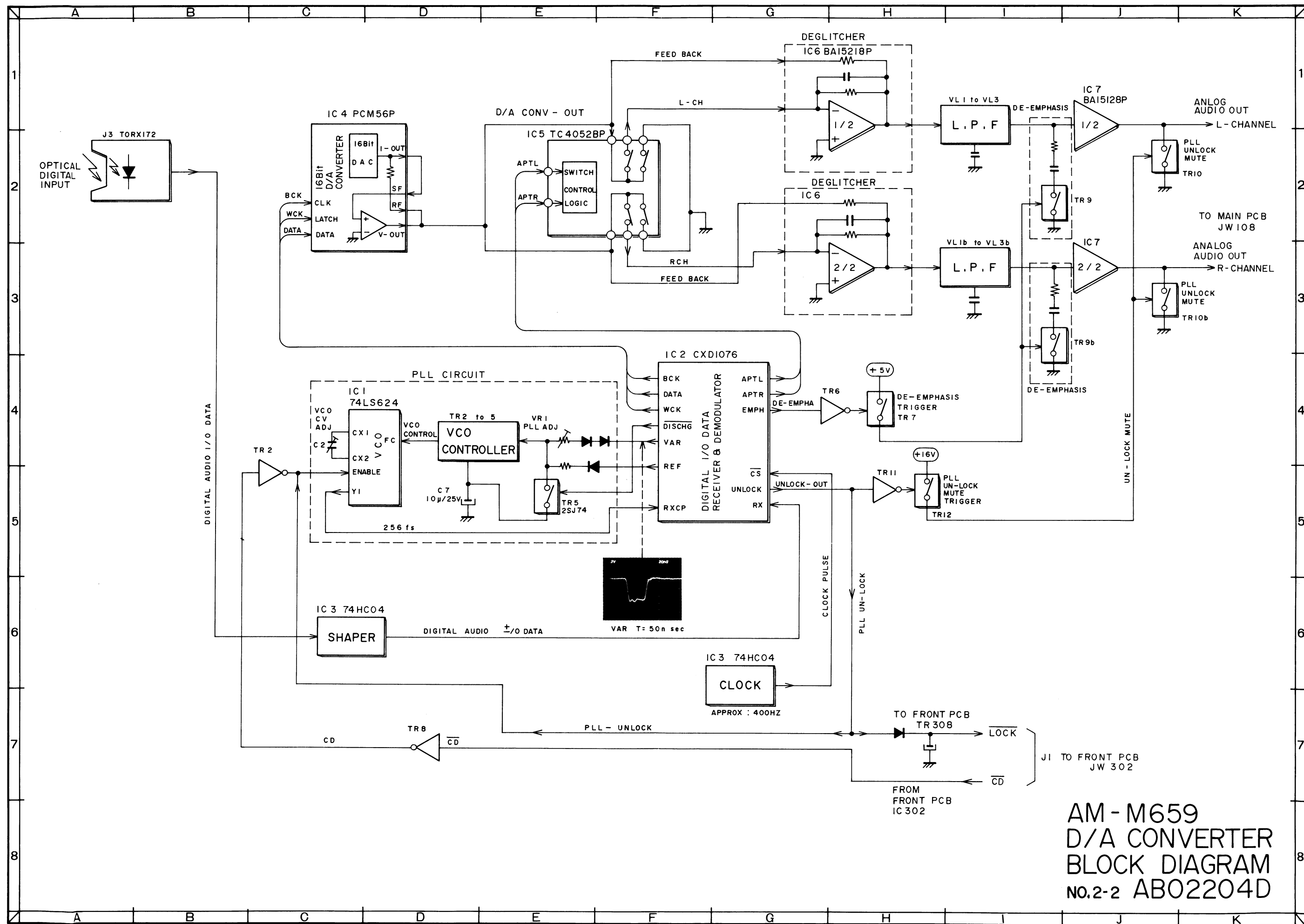


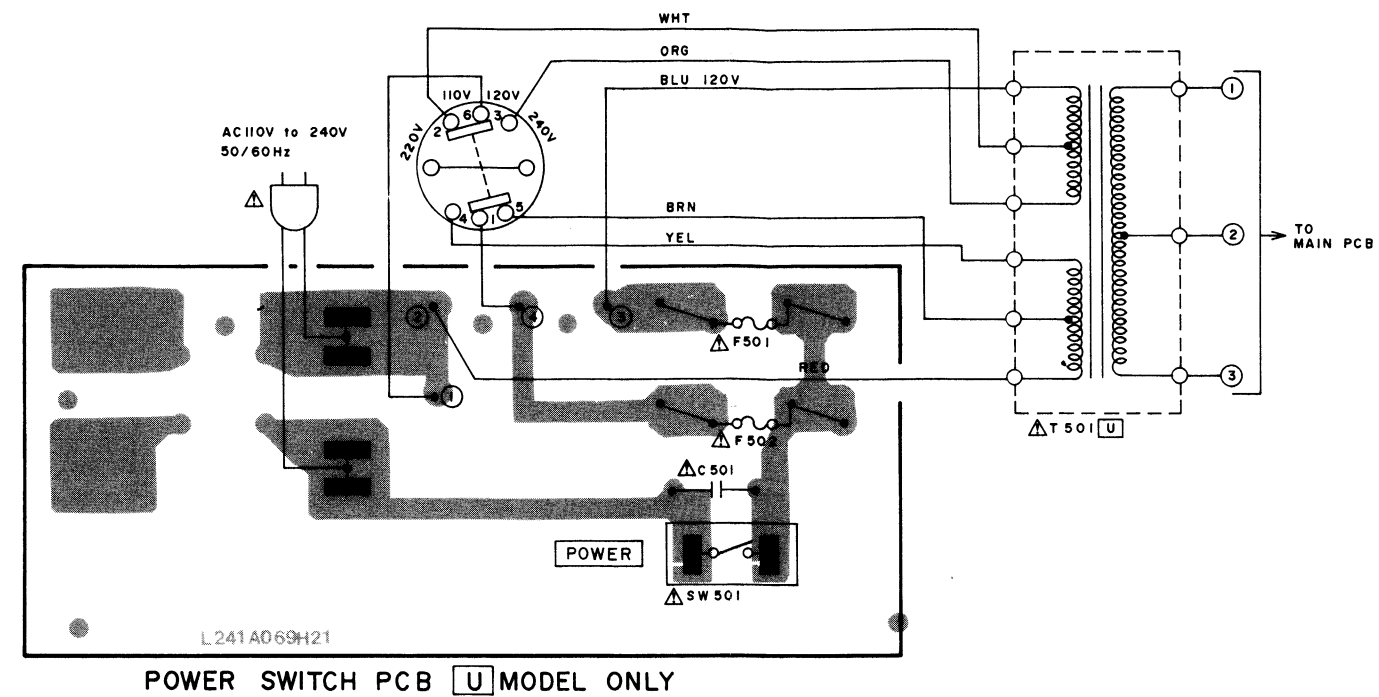
PCM56P (16 Bit D/A Converter)



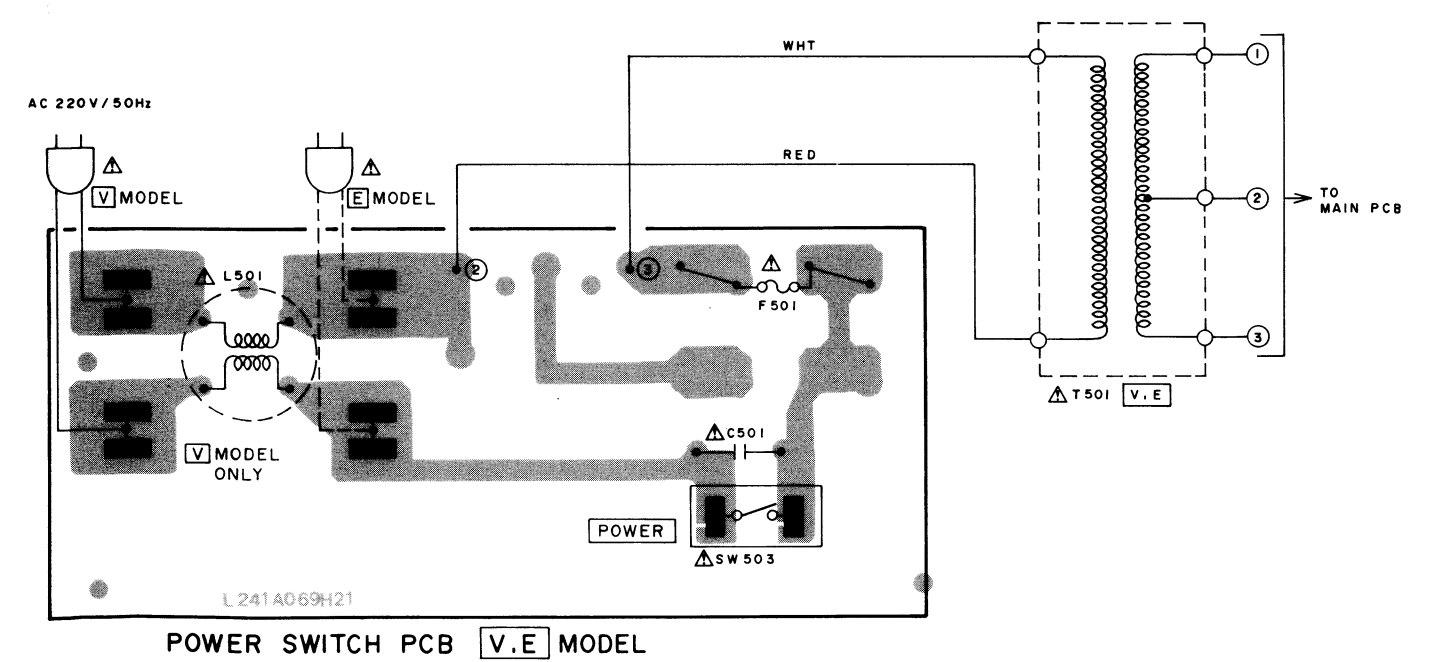
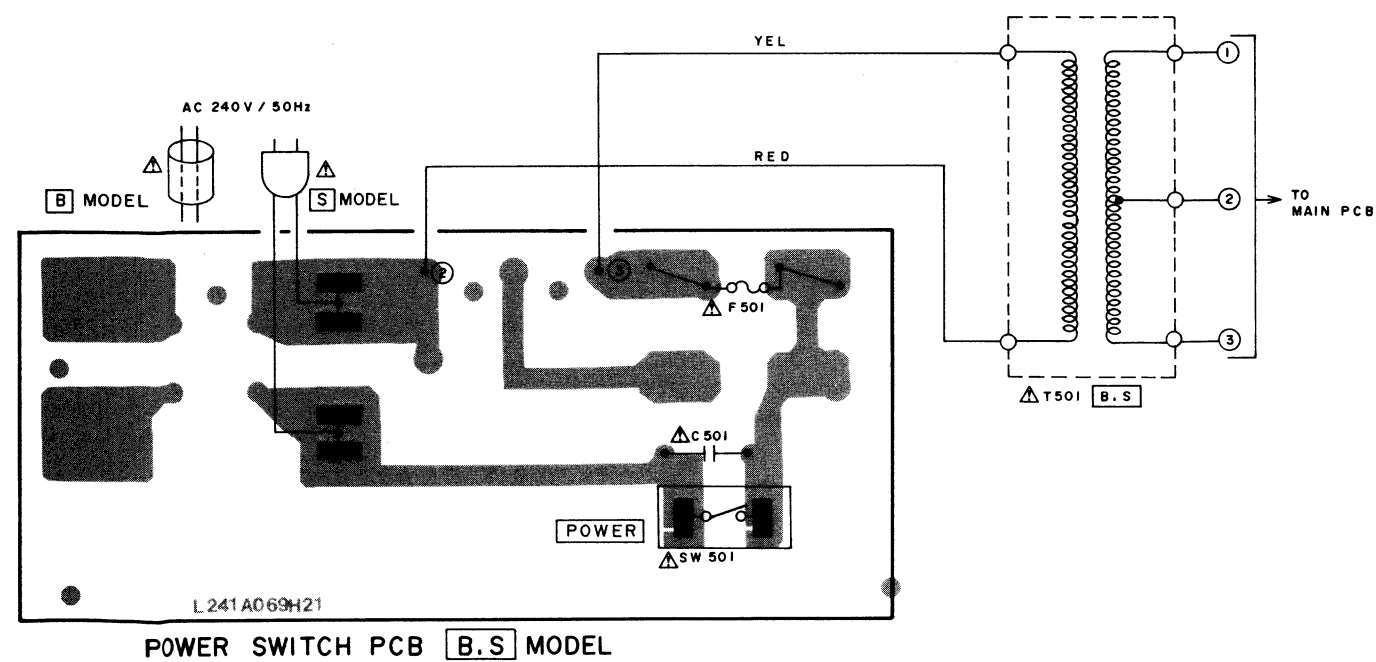


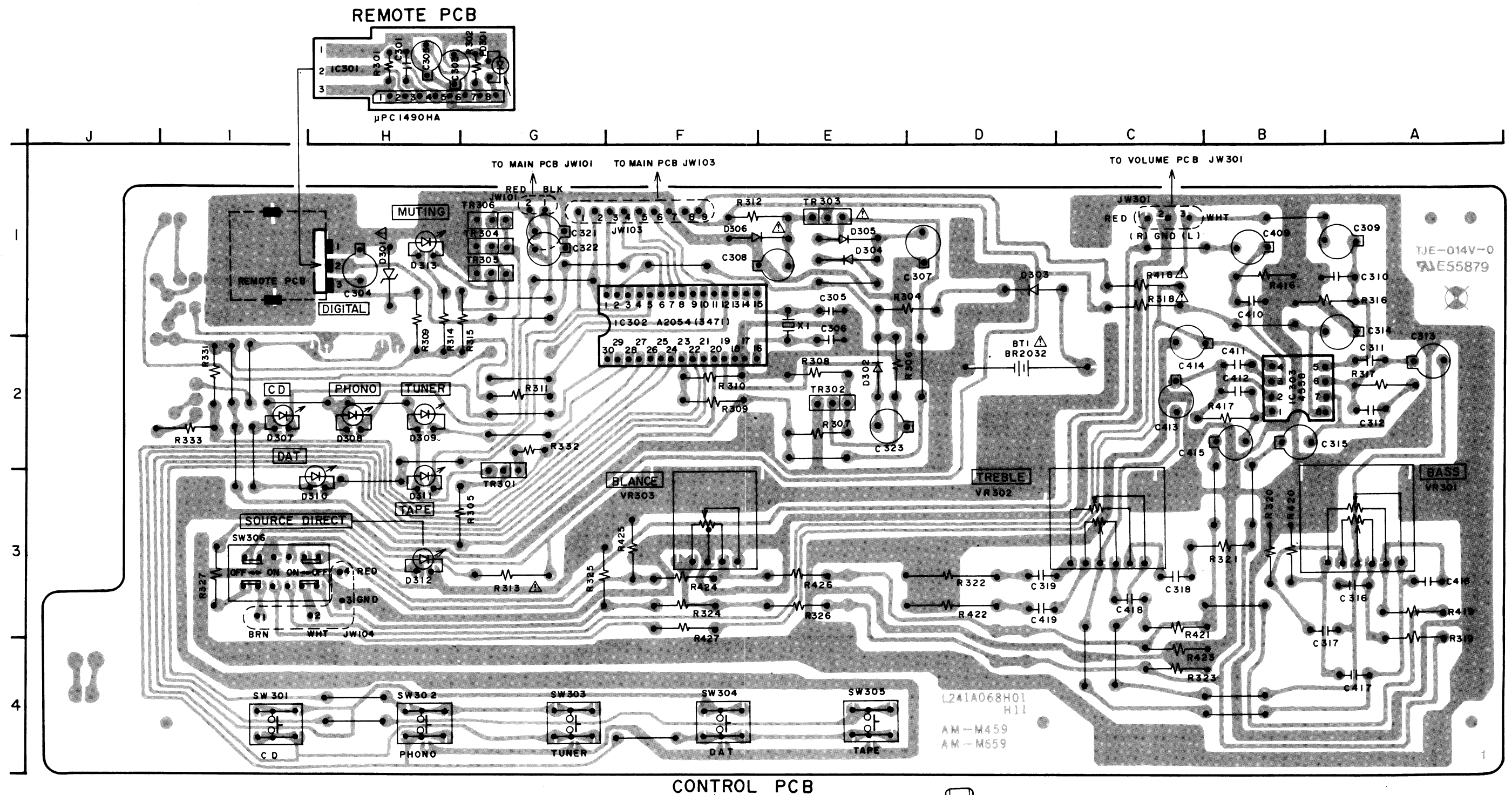
AM-M459/M659
BLOCK DIAGRAM
No.2-1 AB02203D





WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
 AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



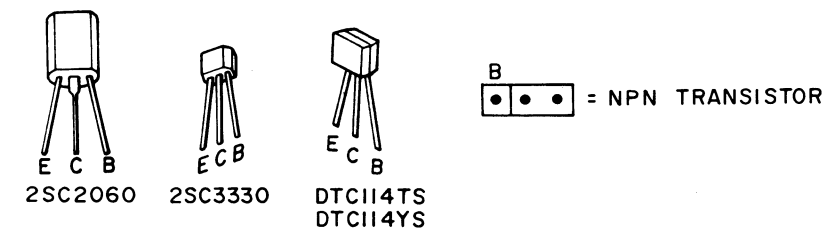


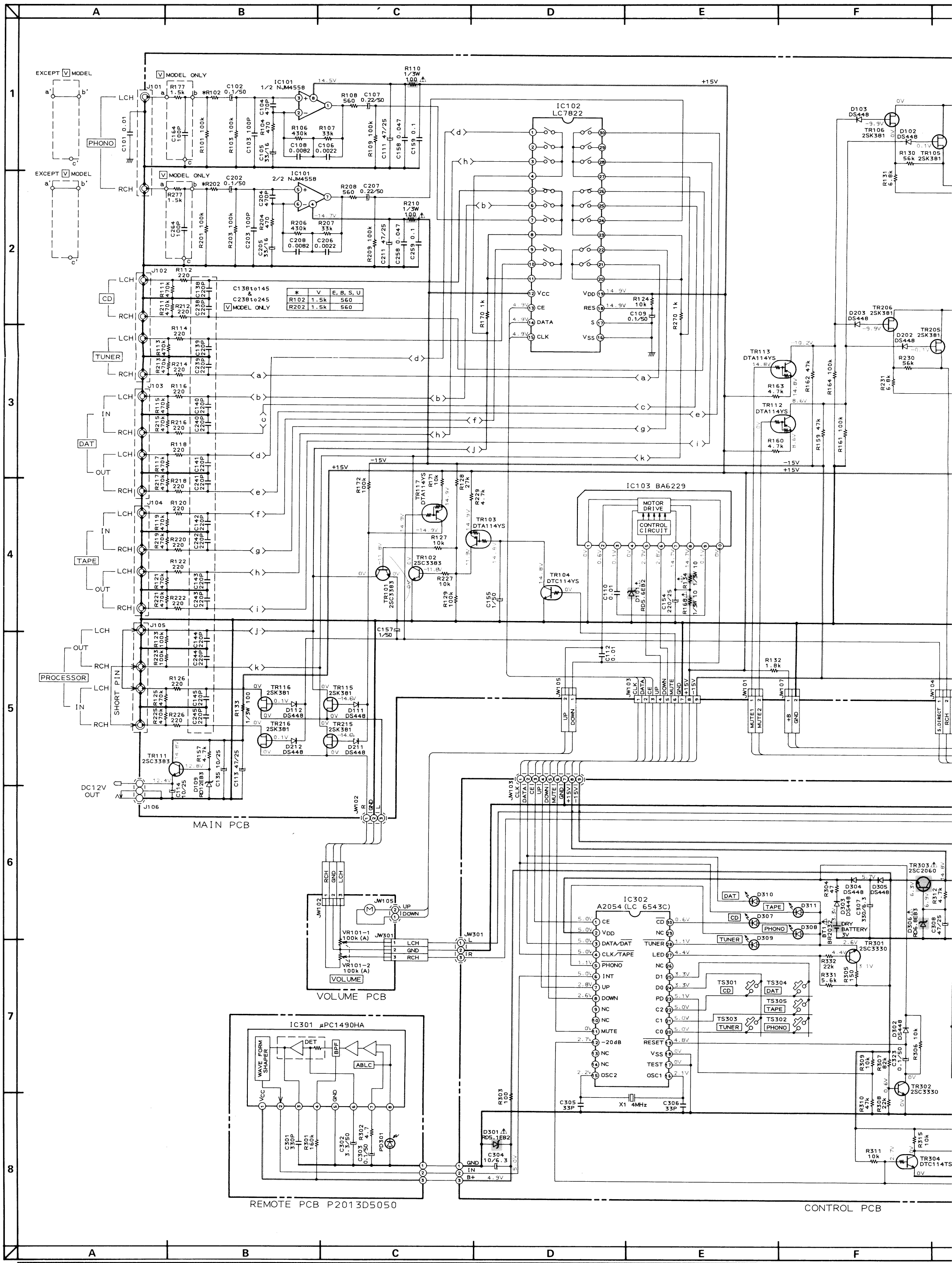
LOCATION OF COMPONENTS

| | |
|--------------------|------------------|
| IC'S | CONNECTOR'S |
| IC301.....I1 | JW101.....G1 |
| IC302.....F1 | JW103.....F1 |
| IC303.....B2 | JW104.....H1, I1 |
| | JW301.....C1 |
| TRANSISTOR'S | |
| TR301.....G2 | |
| TR302.....E2 | |
| TR303.....E1 | |
| TR304, 305, 306.G1 | |

WARNING: INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



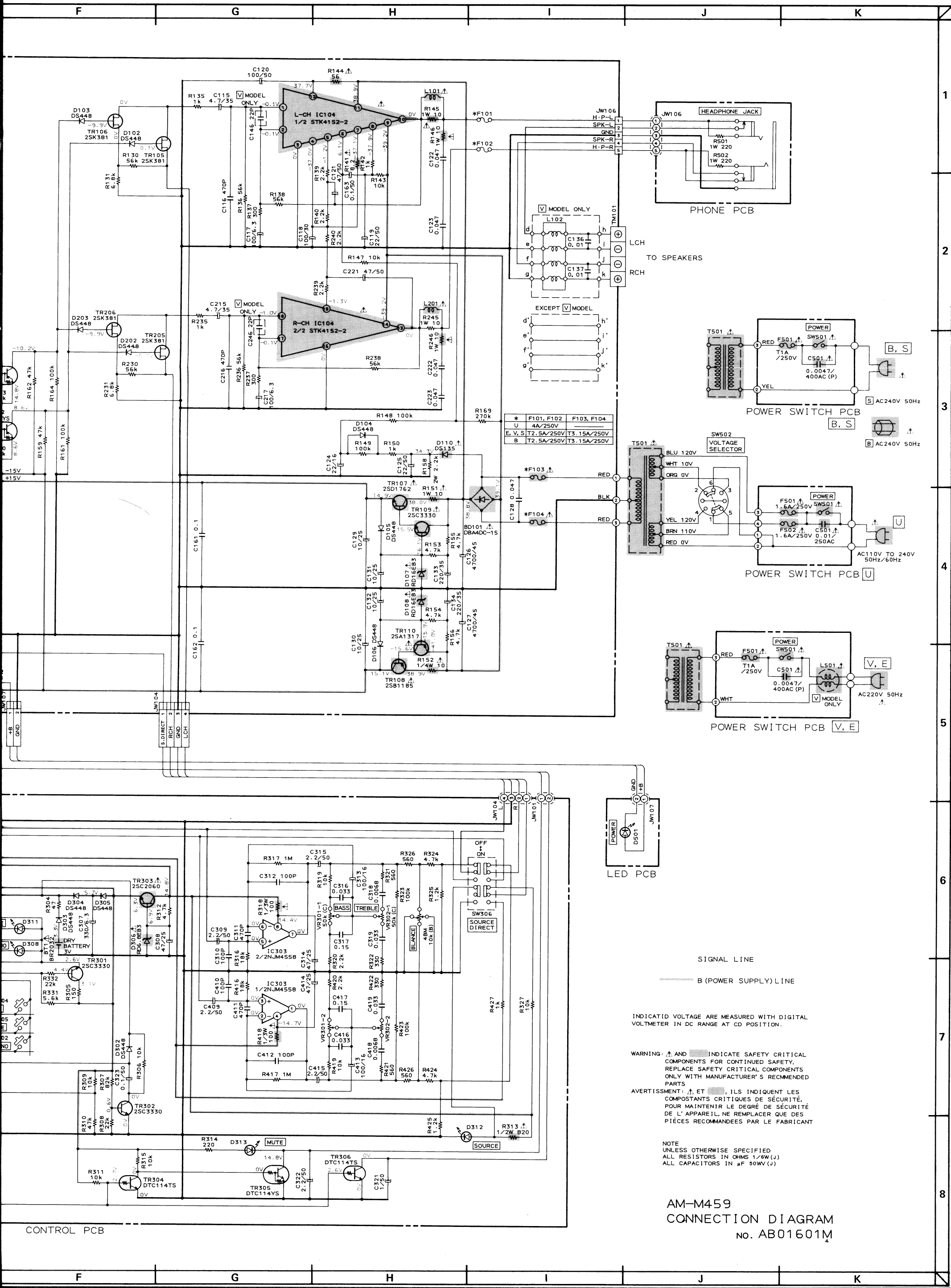


MAIN PCB

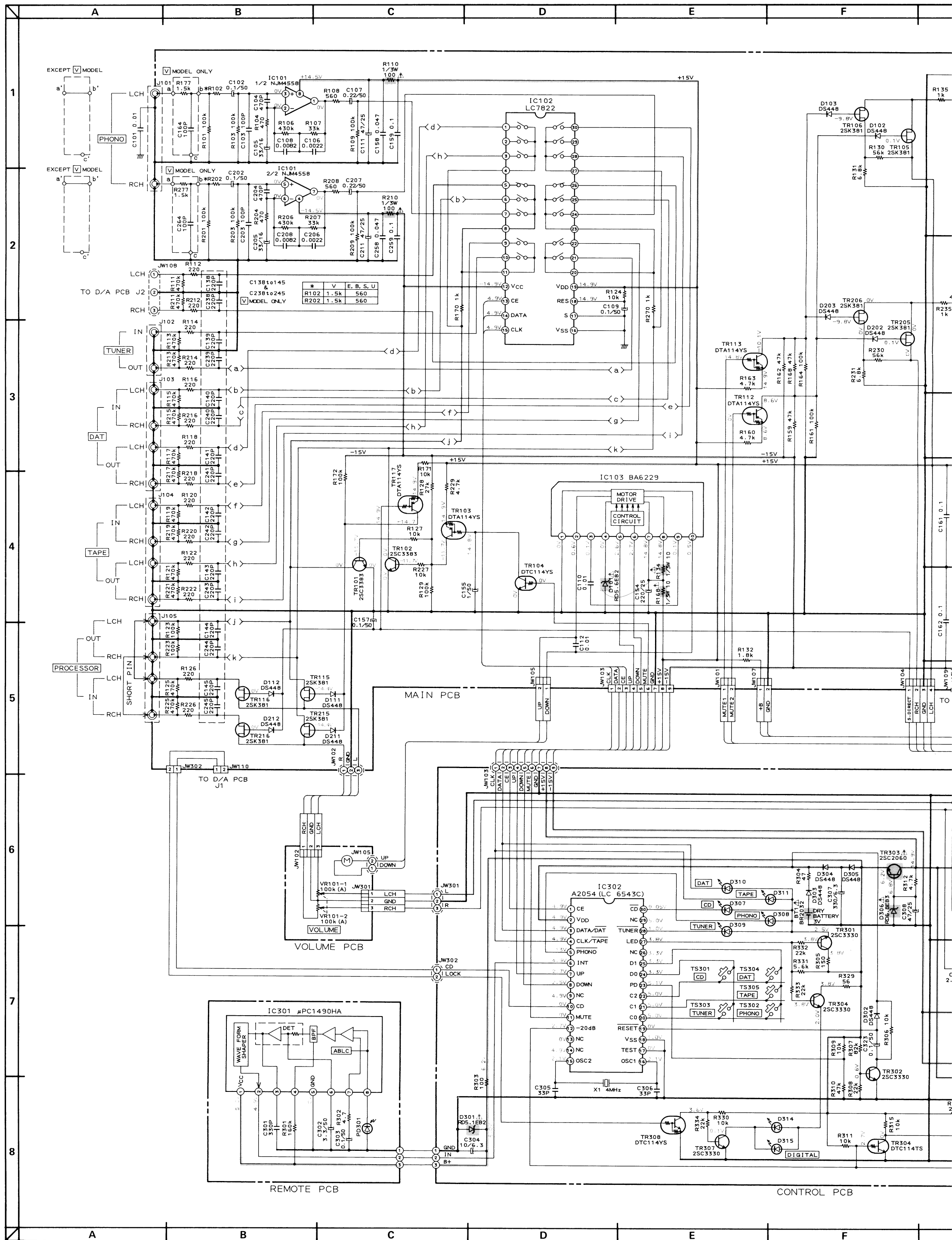
VOLUME PCB

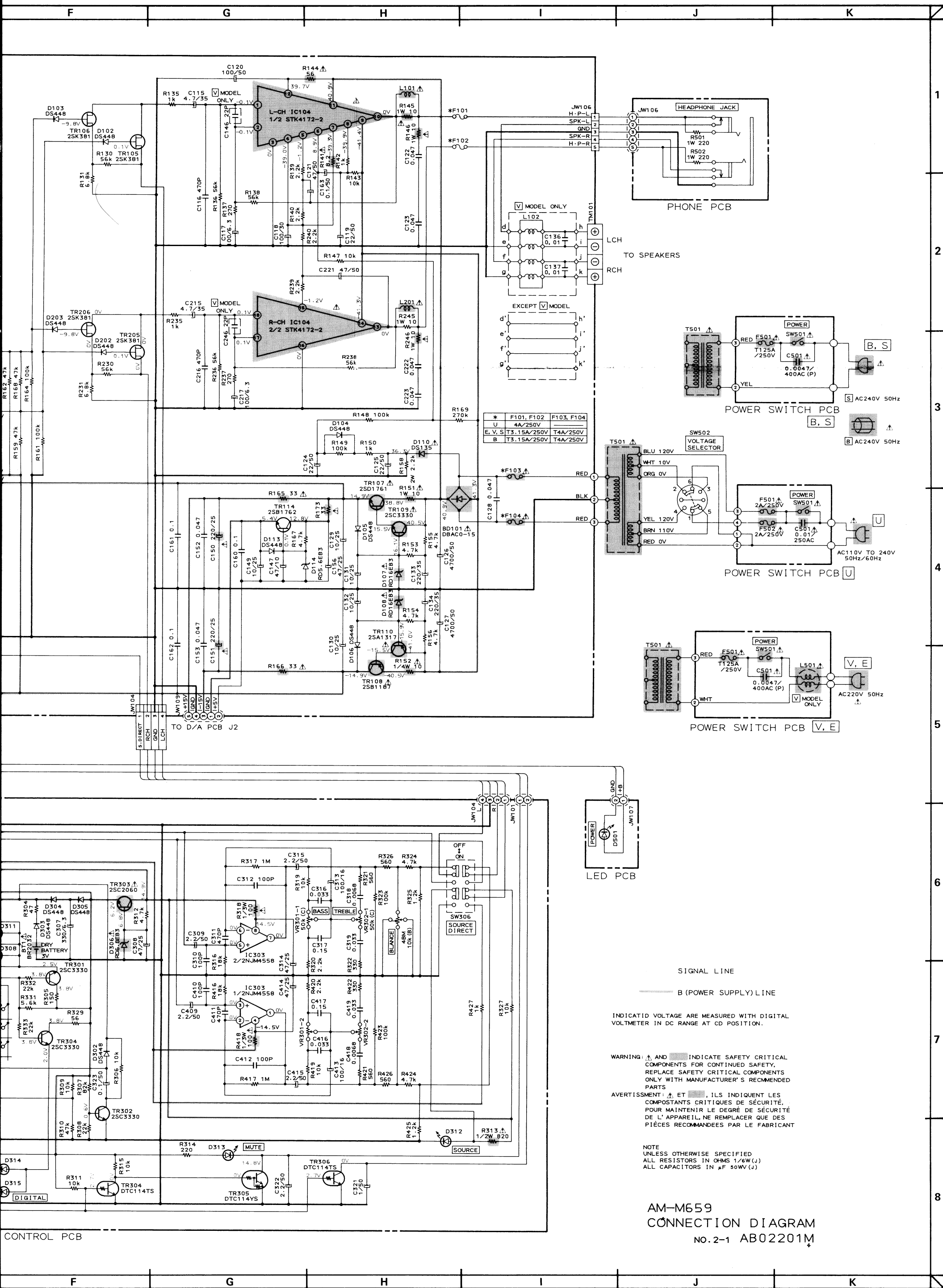
REMOTE PCB P2013D5050

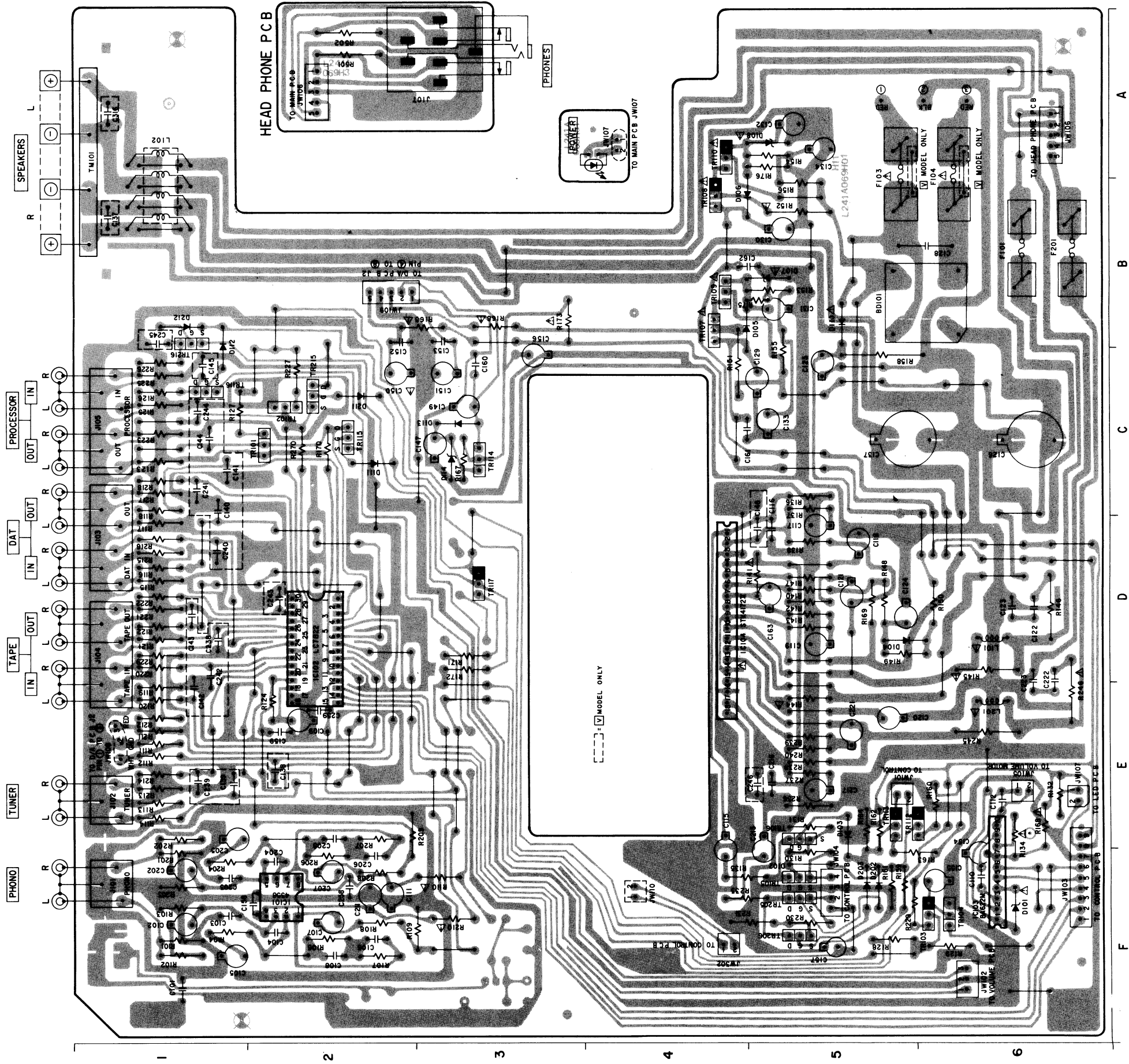
CONTROL PCB



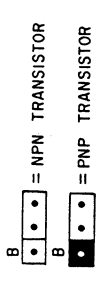
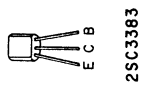
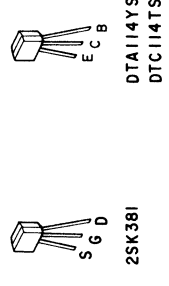
AM-M459
CONNECTION DIAGRAM
No. AB01601M





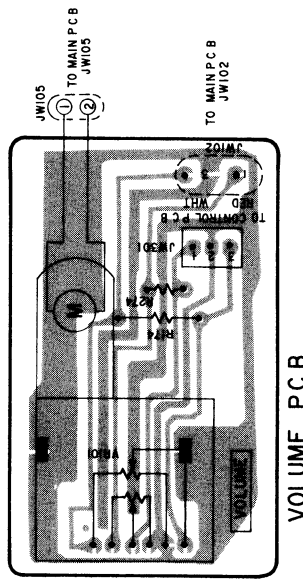


- | | | |
|-----------------|----|----------|
| IC'S | F2 | DT1114YS |
| IC101 | D2 | DT1114TS |
| IC102 | F6 | |
| IC103 | F5 | |
| IC104 | D4 | |
| TRANSISTORS | | |
| TR101, 102 | C2 | |
| TR103, 104 | F6 | |
| TR105 | F5 | |
| TR106 | E5 | |
| TR107, 108, 109 | B4 | |
| TR110 | A4 | |
| TR111 | E3 | |
| TR112 | E6 | |
| TR113 | E8 | |
| TR114 | C3 | |
| TR115 | C2 | |
| TR116 | C1 | |
| TR117 | D3 | |
| TR205, 206 | F5 | |
| TR215 | C2 | |
| TR216 | B1 | |
| CONNECTORS | | |
| JW101 | F1 | |
| JW102 | E1 | |
| JW103, 104 | D1 | |
| JW105 | C1 | |
| JW106 | F1 | |
| JW101, 104 | F5 | |
| JW102, 103 | F6 | |
| JW105 | E6 | |
| JW106 | A6 | |
| JW107 | E7 | |
| JW108 | E1 | |
| JW109 | B2 | |
| JW110 | F4 | |
| JW302 | F4 | |

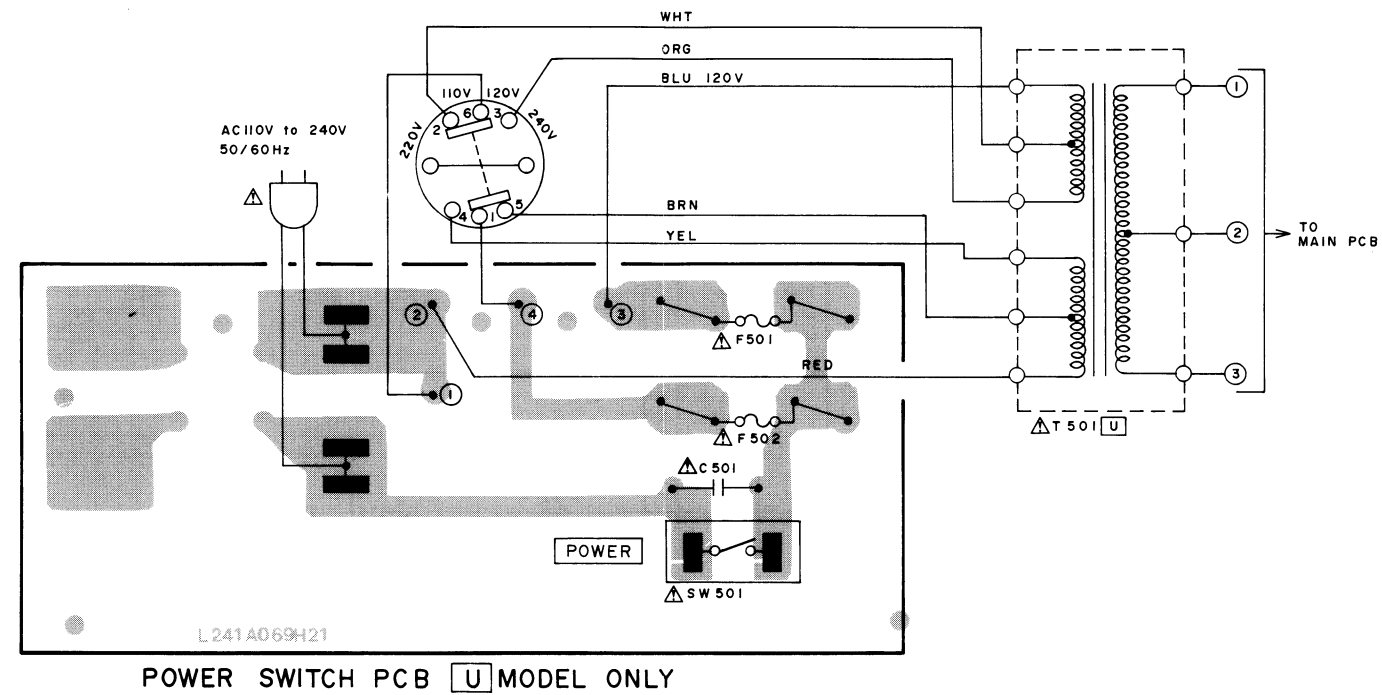


WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

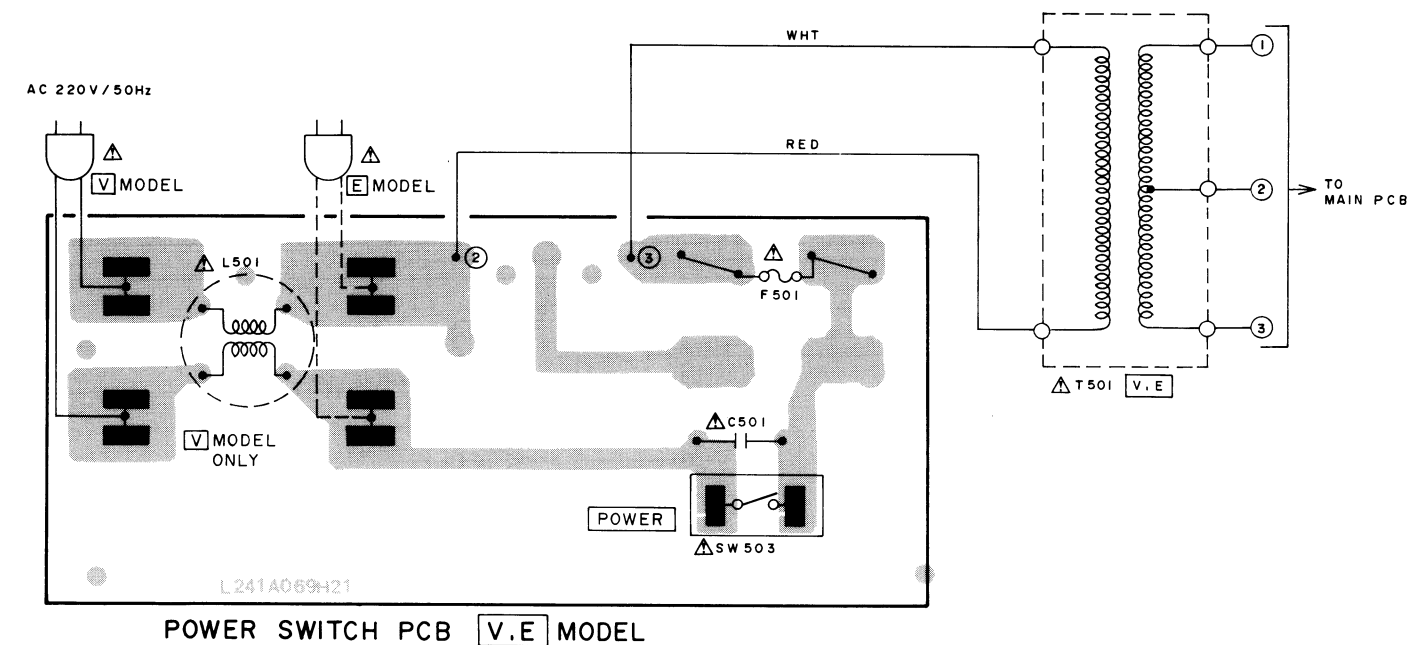
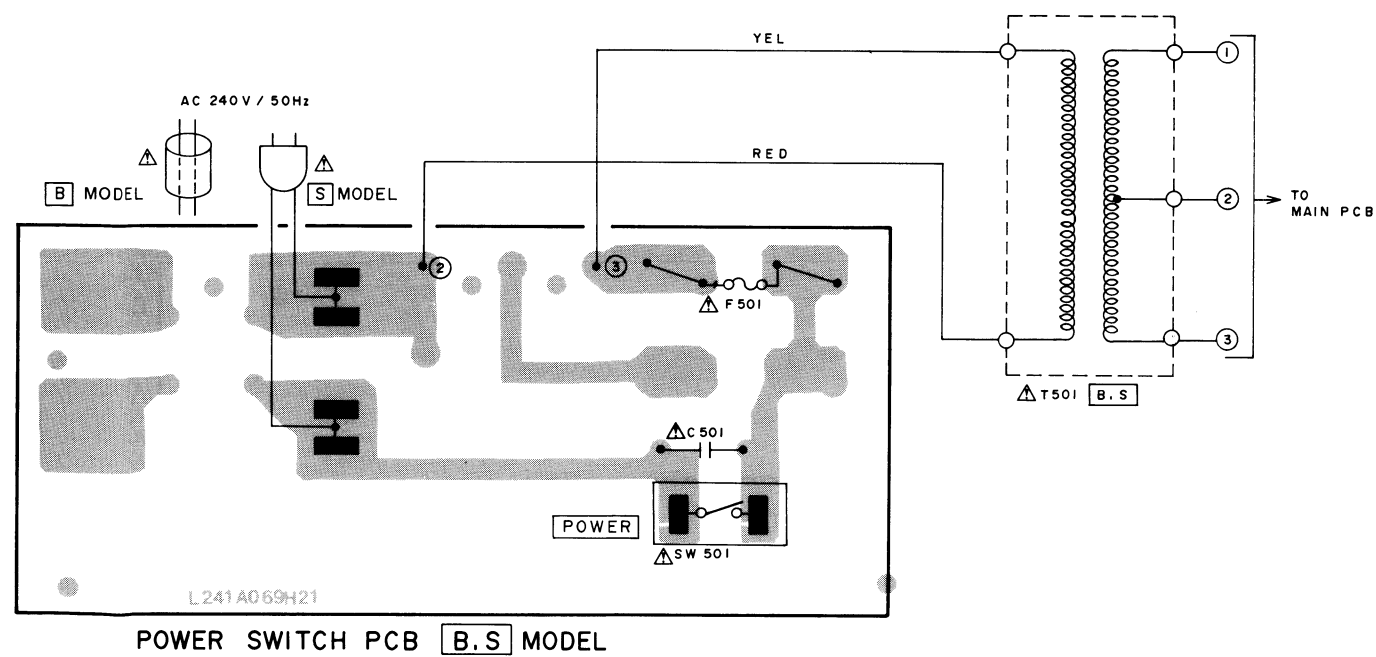


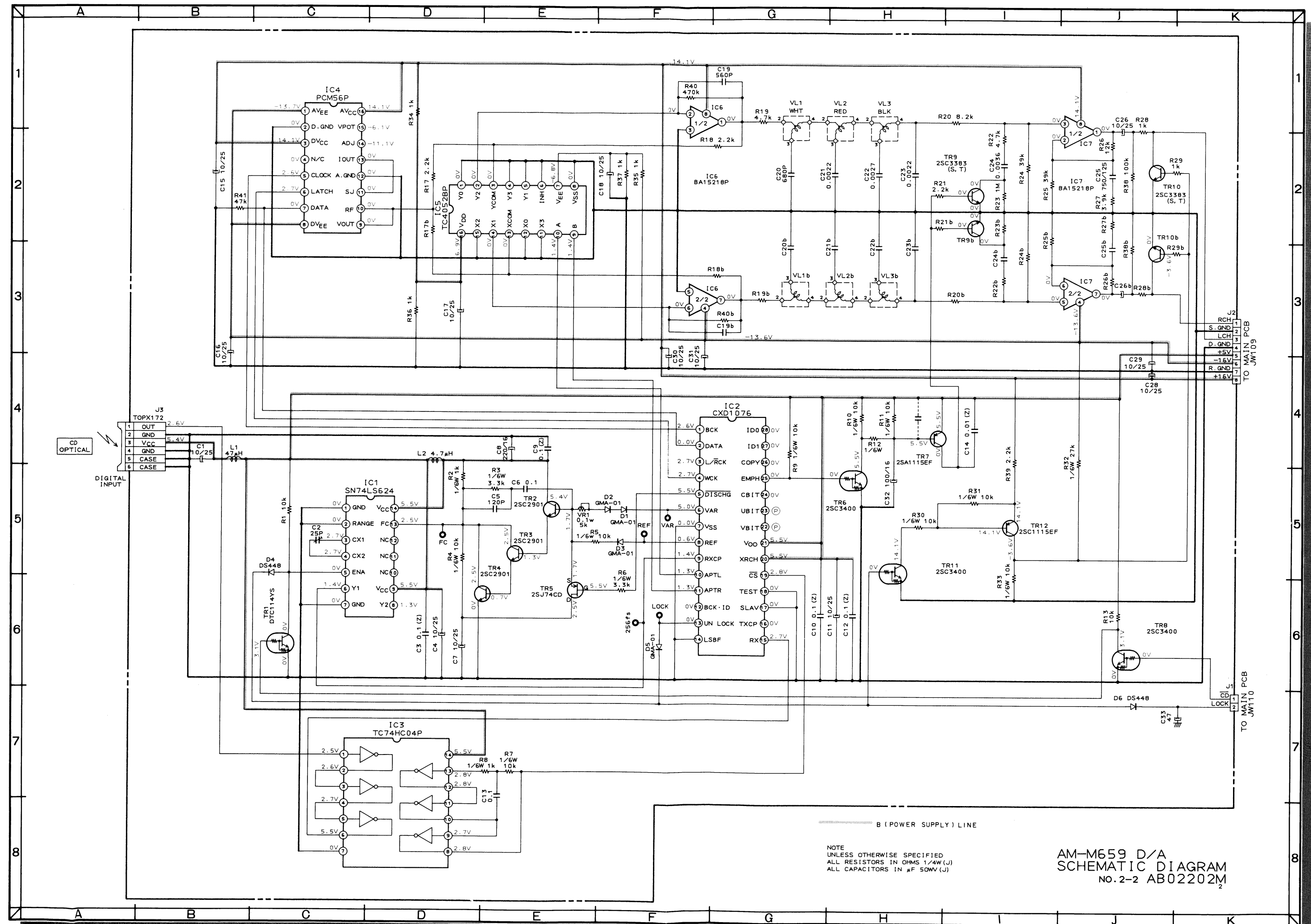
VOLUME PCB

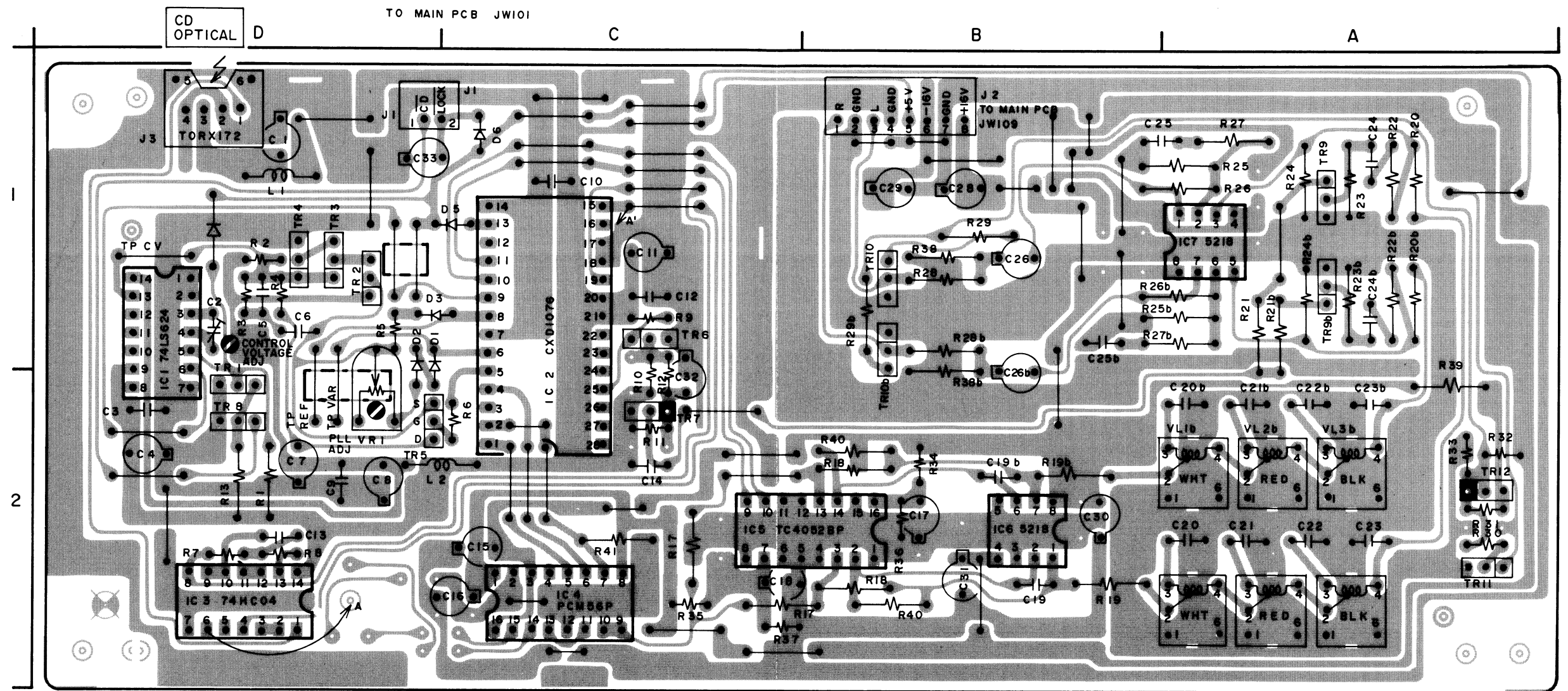


WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.







D/A PCB

LOCATION OF COMPONENTS

IC'S

IC1.....D1
IC2.....C1
IC3.....D2
IC4.....C2
IC5.....B,C2
IC6.....B2
IC7.....A1

CONNECTOR'S

J1.....D1
J2.....B1
J3.....D1

TRANSISTOR'S

TR1.....D2
TR2,3,4.....D1
TR5.....D2
TR6.....C1
TR7.....C2
TR8.....D2
TR9,9b.....A1
TR10,10b....B1
TR11,12.....A2

